CSHQA

Authorization to Bid

DPW Project No/Title: 15251 Admin Bldg Entry Foyer & Main Stair Renovations

Agency Signature Authority

Administrator of Public Works 4/6/16

PROJECT MANUAL

For

UNIVERSITY OF IDAHO

Administration Building Foyer & North Entry Restoration

709 Deakin Street
Moscow, Idaho
83844

DPW Project No. 15-251

UI Project No. 150004

Project No. 15136.000

March 25, 2016

CONSTRUCTION SET

200 BROAD STREET • BOISE, IDAHO 83702 • **(208) 343-4635** • FAX (208) 343-1858

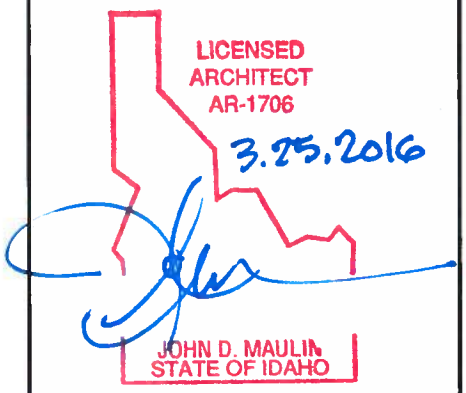
SECTION 000107
SEALS PAGE

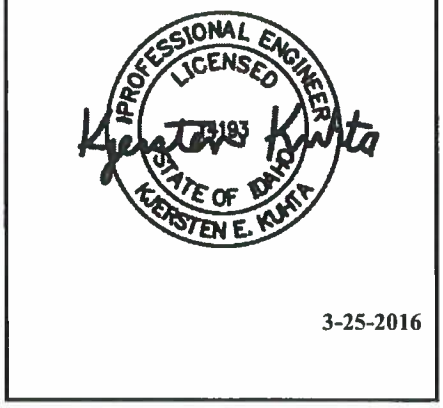
OWNER: Idaho Division of Public Works
502 North Fourth Street
Boise, Idaho 83720

AGENCY: University of Idaho
Moscow, Idaho

ARCHITECT: John D. Maulin, AIA
CSHQA, a professional association
200 Broad Street
Boise, Idaho 83702
(208) 343-4635, phone
(208) 343-1858, fax
john.maulin@cshqa.com
www.cshqa.com

MECHANICAL ENGINEER: Kjersten E. Kuhta, P.E.
MW Consulting Engineers
222 North Wall Street, Suite 200
Spokane, Washington 99201
(509) 838-9020, phone
(509) 838-1123, fax
kjerstenk@mwengineers.com
www.mwengineers.com





3-25-2016

FIRE PROTECTION ENGINEER:	Glen W. Satre, P.E. Fire Protection Engineering 4420 South Tampa Drive Spokane, Washington 99223 (509) 448-1976, phone (509) 838-1123, fax gsatre@comcast.net www.mwengineers.com
ELECTRICAL ENGINEER:	Brandon D. Enevold, P.E. MW Consulting Engineers 222 North Wall Street, Suite 200 Spokane, Washington 99201 (509) 838-9020, phone (509) 838-1123, fax brandone@mwengineers.com www.mwengineers.com

3-25-2016

3-25-2016

END OF SECTION 000107

ADVERTISEMENT FOR BIDS

Sealed proposals will be received by Mark Schlickenmeyer at the Division of Public Works, State of Idaho at 875 Perimeter Drive, MS 2281, Moscow, ID 83844-2281 until 2:00PM (PST), local time, on May 10, 2016 for DPW Project No. 15251.

Entry Foyer & Main Stair Renovation

Project can be summarized to include the restoration of the three story foyer and north stair of the Administration Building on the University of Idaho Campus. Specifically, M/E/P/FP systems will be upgraded, historic finishes restored, and life safety issues will be address in this project. Please note that access shall be maintained through work area (Hallway) during construction so that occupants on the north side of the building have access to the elevator located on the south side. Contractor shall propose a method of access prior to the start of construction.

Proposals will be opened and publicly read at the above hour and date.

Plans, specifications, proposal forms and other information are on file for examination at the following locations:

Division of Public Works, 502 N. 4th St., Boise, ID, 83702 (208) 332-1900.

Associated General Contractors, 1649 W Shoreline Dr., Ste. 100, Boise, ID 83702 (208) 344-2531
www.nwagcplanroom.com.

ARC Document Solutions, 2700 W. Idaho St., Boise, ID 83702 (208) 342-4141
www.nwcontractorsnetwork.com.

Blueprint Specialties, 6205 W. Overland Rd., Boise, ID 83709 (208) 377-0294 www.docuproject.com.

A bid bond in the amount of 5% of the total bid amount, including any add alternates, is required.

One set of documents may be obtained by licensed general contractors and by licensed mechanical and electrical subcontractors from the Architect (Engineer) for a refundable deposit of $100. Others may obtain documents at cost, non-refundable.

A pre-bid conference will be held at The University of Idaho, Facilities Conference Room (Jacks Creek) on April 26, 2016 starting at 1:30PM (PST). Bidders are encouraged to attend.

The Bid Opening will occur on May 10, 2016 at 2:00PM (PST).

Submittals and shop drawing reviews and approval to commence upon issuance of Notice to Proceed.

Stage 1: Notice to Proceed will stipulate on-site construction work to begin and completed within fifty-five (55) consecutive calendar days for the north exterior stairs and full fire suppression system.

Stage 2: Substantial completion of remaining work shall be completed within one-hundred and fifteen (115) consecutive calendar days from Notice to Proceed.

A Public Works Contractors License for the State of Idaho is required to bid on this work.

Estimated Cost: $915,664

Barry J. Miller, Deputy Administrator
Division of Public Works

END OF ADVERTISEMENT FOR BIDS

INSTRUCTIONS TO BIDDERS

GENERAL PROVISIONS

DEFINITIONS: Capitalized terms used in these Instructions to Bidders ("Instructions") shall have the meaning given to them in the Division of Public Works' Fixed Price Construction Contract Between Owner and Contractor.

HEADINGS: Headings used in these Instructions are for convenience only.

REJECTION OF BIDS, WAIVER OF INFORMALITIES OR CANCELLATION: Prior to the effective date of a contract, the Administrator of the Division of Public Works shall have the right to accept or reject all bids, to waive any minor deviations/informalities or to cancel the bid.

ORAL INFORMATION: Questions concerning a bid must be directed in writing to the designated Design Professional (architect or engineer) no less than ten (10) calendar days before bids are due unless provided otherwise via an addendum. Oral information is not binding and any reliance by a bidder on any oral information or representation is at the bidder's sole risk. Any information given a prospective bidder in response to a written question will be provided to all prospective bidders by an addendum, if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders.

PUBLIC RECORDS: The Idaho Public Records Law, Sections 9-337 through 9-348, Idaho Code, allows the open inspection and copying of public records. Public records include any writing containing information relating to the conduct or administration of the public's business prepared, owned, used or retained by a State or local agency regardless of the physical form or character. Unless exempted by the Public Records Law, your bid will be a public record subject to disclosure under the Public Records Law. Any questions regarding the applicability of the Public Records Law should be addressed to your legal counsel prior to submission.

FORM OF AGREEMENT: Unless otherwise specified in the bid documents, the agreement between the successful bidder and the Owner ("State of Idaho") shall be the Division of Public Works' Fixed Price Construction Contract Between Owner and Contractor.

PERFORMANCE AND PAYMENT BONDS: A performance bond and payment bond are required for this Project, each in an amount of not less than one hundred percent (100%) of the Contract Price. The performance and payment bonds shall be AIA Document A312, 1984 or the most recent Edition, or a standard surety form certified approved to be the same as the AIA A312 form and shall be executed by a surety or sureties reasonably acceptable to the Owner and authorized to do business in the State of Idaho. Bonds must be provided within ten (10) calendar days following receipt of a Notice of Intent to Award.

BID SUBMISSION PROCESS

BID DOCUMENTS: The bid documents are available from the Design Professional or as provided in the Invitation to Bid or advertisement for bids. The responsibility is on the bidder to use a complete set of bid documents to prepare its bid and neither the Owner nor the Design Professional shall incur any

liability for the bidder's failure to do so. Bidders obtain no ownership interest or any use rights, except to use in preparation of their bid, by issuance of the bid documents.

Bidders and Sub-bidders shall field verify all dimensions pertaining to the Work and shall be responsible for the determination of all quantities of materials required for the completion of the Work. The bidder shall not rely on the scale drawings of the Bidding Documents in his determination of required materials quantities. No allowance shall be made for Bidder's failure to field-verify dimensions.

If a deposit is required, the deposit will be returned to a bidder returning the complete bid documents in good condition no more than twenty (20) days after a Notice of Intent is issued and the amount of any deposit returned may be reduced if the bid documents returned are not complete or are damaged. A bidder awarded a Contract may also keep the bid documents and any deposit will be returned.

ADDENDA: In the event it becomes necessary to revise any part of the bid documents, addenda will be issued. Information given to one bidder will be available to all other bidders if such information is necessary for purposes of submitting a bid or if failure to give such information would be prejudicial to uninformed bidders. It is the bidder's responsibility to check for addenda prior to submitting a bid. A bidder is required to acknowledge receipt of all addenda by identifying the addenda numbers in the space provided on the bid proposal form. Failure to do so may result in the bid being declared non-responsive. No addenda will be issued less than four (4) calendar days before the closing date unless the bid closing date is extended.

REVIEW: It is the bidder's responsibility to review the bid documents and compare them as needed, including with regard to any other work that is or may be under construction that might affect the bidder or its work, to examine the site and local conditions and to report, in writing, any questions, errors, inconsistencies or ambiguities to the Design Professional.

PRODUCTS SPECIFIED AND PROPOSED SUBSTITUTIONS: Materials, products or equipment, if specified by name or manufacturer, establish the standard of quality required and that must be met by any proposed substitution. Requests for substitutions must be made in writing to the Design Professional no less than ten (10) calendar days prior to the bid closing unless provided otherwise via an addendum. Such requests must provide detailed information to allow the Design Professional to determine if the proposed substitution is acceptable, including drawings or performance or test data and a detailed statement of how the substitution would change any other part of the Work. It is the bidder's obligation to satisfy this requirement and the Design Professional's decision shall be final. To be allowed, substitutions must be approved in an addendum to the bid documents.

BID FORM: Bids must be submitted on the bid proposal forms, or copies of forms, furnished by the Owner or the design professional. Bids submitted must contain all original signatures in ink on the following forms:

Bid Proposal Form
Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace
Bidder's Acknowledgment Statement
Bid Bond (bid security)

The person signing the Bid Proposal Form must initial any and all changes appearing on any of the bid forms. If the bidder is a corporation or other legal entity, the bid forms must be signed by an authorized designee. Oral, telephonic, telegraphic, facsimile or other electronically transmitted bid forms and/or signatures will not be considered.

BID PRICES: The bid form may require bidders to submit bid prices for one (1) or more items on various bases, including lump sum base bid, lump sum bid alternate prices, unit prices or any combination thereof. Bid amounts shall be expressed in words and numbers. The amount in words shall prevail if there is a discrepancy.

ALTERNATES: If the solicitation includes alternate bid items or unit prices, failure to bid on the alternates or unit prices may disqualify the bid. If bidding on an alternate does not change the base bid, indicate by "No Change." If bidding on all items is not required by the Contract Documents, bidders must affirmatively indicate that they are not bidding on those items.

TIME FOR SUBMISSION: Bids must be submitted on or before the time specified in the advertisement for bids. Any bid submitted late will be rejected.

SEALED ENVELOPE: Bids shall be submitted in a sealed envelope with the following clearly printed on the outside of the envelope: the Project number and Project name; the name and address of the bidder; and a statement, such as "BID ENCLOSED" to indicate that it is a bid.

MAILED BIDS: When bids are mailed or shipped, the sealed envelope containing the bid shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof. If mailed, the mailing envelope shall be addressed as follows:

Division of Public Works
c/o Mark Schlickenmeyer
875 Perimeter Drive, MS 2281
Moscow, ID 83844-2281

It is the bidder's responsibility to ensure that its bid is delivered to the place designated for receipt on or before the specified closing time. The Owner assumes no responsibility for delays in the delivery of mail by the U.S. Post Office or private couriers. Bidders should be advised the intra-state mail system may increase delivery time from arrival at Central Postal to the place designated for receipt and should plan accordingly. **LATE SUBMISSIONS WILL BE REJECTED, WILL NOT BE OPENED AND WILL BE RETURNED TO THE BIDDER. NO DEVIATIONS WILL BE ALLOWED.**

BID CLOSING DECLARED: Immediately prior to the bid opening, the Owner's representative will declare the official bid closing. Any part of a bid not received prior to the bid closing declared by the designated representative will not be considered and will be returned to the bidder unopened. All bids shall be taken under advisement.

DRUG-FREE WORKPLACE: Along with its bid, the bidder shall submit an affidavit certifying compliance with Title 72, Chapter 17, Idaho Code, requiring the Contractor and its subcontractors at the time of bid to provide a drug-free workplace program and to maintain such program throughout the duration of the Contract. The form of affidavit is attached.

ILLEGAL ALIENS: Bidder shall warrant that the bidder does not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States; bidder shall take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to work in the United States; and that any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties and/or termination of any Contract resulting from this bid.

LEGAL RESIDENCY REQUIREMENT: By submitting a bid, the bidder attests, under penalty of perjury, that he (the bidder) is a United States citizen or legal permanent resident or that it is otherwise lawfully present in the United States pursuant to federal law. Prior to being issued a contract, the bidder will be required to submit proof of lawful presence in the United States in accordance with §67-7903, Idaho Code.

BIDDER'S ACKNOWLEDGEMENT STATEMENT: The attached Bidder's Acknowledgement Statement must be completed and included or the bid may be found non-responsive.

PUBLIC WORKS CONTRACTOR'S LICENSE: This Project is not financed in whole or in part by federal funds. Bids will be accepted from those Contractors only (prime contractors, subcontractors and/or specialty contractors) who, prior to the bid opening, hold current licenses as public works contractors in the State of Idaho.

IDAHO LABOR REQUIREMENTS: This Project is subject to the provisions of Sections 44-1001 and 44-1002, Idaho Code, dealing with labor preference.

IDAHO PREFERENCE LAW: Section 67-2348, Idaho Code, requires the Division of Public Works to apply a preference in determining which Contractor submitted the lowest responsible bid. If the Contractor who submitted the lowest dollar bid is domiciled in a state with a preference law that penalizes Idaho domiciled contractors, the Division of Public Works must apply the preference law (percentage amount) of that domiciliary state to that Contractor's bid.

NAMING OF SUBCONTRACTORS: Section 67-2310, Idaho Code, requires general (prime) Contractors to include in their bid the name of the subcontractors who shall, in the event the Contractor secures the Contract, subcontract the plumbing, HVAC, and electrical work under the general (prime) Contract. Failure to name subcontractors as required by this section shall render any bid submitted by a general (prime) Contractor nonresponsive and void. Subcontractors named in accordance with the provisions of this section must possess an appropriate license or certificate of competency issued by the State of Idaho covering the Contractor work classification in which the subcontractor is named.

The Division of Public Works interprets Section 67-2310, Idaho Code, to mean three (3) separate areas of work: plumbing work, HVAC, and electrical work. The Division of Public Works also requires that the general (prime) Contractor name the entity that will perform the Work, including if the entity is a subcontractor, a sub-subcontractor or the general (prime) Contractor submitting the bid. Failure to complete the Bid Proposal in full shall render a bid nonresponsive and void.

With regard to possessing an appropriate license or certificate of competency, all subcontractors listed by the general (prime) Contractor must have at the time of the bid opening a current license in the appropriate category (class, type and specialty category) as issued by the Public Works Contractors State License Board. In addition, plumbing, HVAC and electrical subcontractors shall have at the time of the bid opening a valid plumbing contractor's license, HVAC contractor's license or electrical contractor's license, respectively, as issued by the Idaho Division of Building Safety.

In determining if the above listed subcontractors are required on the Project, the Division of Public Works will refer to the plans and specifications. If doubt exists prior to bid closing, potential bidders should contact the Division of Public Works and the Design Professional who prepared the plans and specifications will be requested to make the determination. If plumbing, HVAC or electrical work are not

shown on the plans and specifications, but are discovered by the bidder prior to the date of bid opening, then the bidder must request clarification from the Design Professional. Absent such clarification, Work will be considered incidental and naming of a subcontractor will not be required.

BID SECURITY

AMOUNT AND FORM OF SECURITY: To be considered, bids must be accompanied by an acceptable bid security in an amount not less than five percent (5%) of the total amount of the bid, including additive alternates. The security may be in the form of a bond or a certified or cashier's check. A standard surety bid bond form meeting all the conditions of AIA Document A310 is acceptable and, if used, must include a certified and current copy of the power of attorney if the bond is executed by the attorney-in-fact on behalf of the surety.

FORFEITURE: A successful bidder who fails to sign the Contract for the Work or furnish the required bonds within ten (10) calendar days following the receipt of notice of intent to award a Contract is subject to forfeiture in accordance with Section 54-1904E, Idaho Code.

RETENTION OF SECURITY: Bid security shall be retained for no more than forty-five (45) calendar days after the opening of bids, so long as the bidder has not been notified of the acceptance of the bid.

BID WITHDRAWAL

PRIOR TO BID CLOSING: If a bid has been submitted, it may be withdrawn in person by a bidder's authorized representative before the opening of the bids. A bidder's representative will be required to show identification and sign on a bid summary sheet before it will be released. After bid closing, no bid may be withdrawn except in strict accordance with these Instructions or applicable law.

BID MODIFICATION

PRIOR TO BID CLOSING: If a bid has been submitted, it may be modified by the submission of a written document contained in a separate sealed envelope marked "Bid Modification from [Name of Bidder] for DPW Project No: 15251; Entry Foyer & Main Stair Renovation." **THE DOCUMENT MODIFYING THE BID MUST BE SIGNED IN INK BY AN AUTHORIZED REPRESENTATIVE OF THE SUBMITTING BIDDER. THE DIVISION OF PUBLIC WORKS RESERVES THE RIGHT TO REQUIRE PRESENTATION OF EVIDENCE SATISFACTORY TO IT TO ESTABLISH THE AUTHORITY TO ACT ON BEHALF OF THE SUBMITTING BIDDER. NO OTHER FORM OF MODIFICATION (INCLUDING TELEPHONE, FACSIMILE OR ELECTRONIC MAIL) WILL BE ACCEPTED. AFTER BID CLOSING, NO BID MAY BE MODIFIED EXCEPT IN STRICT ACCORDANCE WITH THESE INSTRUCTIONS OR APPLICABLE LAW.**

RELIEF FROM BIDS

CONDITIONS FOR RELIEF: Relief from bids is subject to Sections 54-1904B through 54-1904E, Idaho Code. In the event a bidder discovers a mistake in its bid following the bid opening and wishes to withdraw its bid, the bidder shall establish to the satisfaction of the Owner, pursuant to Section 54-

1904C, Idaho Code, that a clerical or mathematical mistake was made; the bidder gave the public entity (Owner) written notice within five (5) calendar days after the opening of the bid of the mistake, specifying in the notice in detail how the mistake occurred; and the mistake was material.

DETERMINATION: If the Owner determines that the bidder has satisfied the requirements of Section 54-1904C, Idaho Code, to entitle it to relief from a bid because of a mistake, it shall prepare a report in writing to document the facts establishing the existence of each required element. The report shall be available for inspection as a public record and shall be filed with the public entity soliciting bids. A bidder claiming a mistake and satisfying all the required conditions of Section 54-1904C, Idaho Code, shall be entitled to relief from the bid and have any bid security returned by the Owner. Bidders not satisfying the conditions of Section 54-1904C, Idaho Code shall be subject to forfeiture in accordance with Section 54-1904B, Idaho Code. A bidder who claims a mistake or who forfeits its bid security shall be prohibited from participating in any re-bidding of that project on which the mistake was claimed or security forfeited and the Owner may award the Contract to the next lowest responsive and responsible bidder.

BIDDER'S REPRESENTATIONS

REPRESENTATIONS UPON SUBMITTING A BID: By submitting its bid, a bidder represents and warrants the following:

1. The person signing the bid is authorized to bind the bidder;
2. It has all required licenses, permits or other authorizations necessary to submit its bid;
3. It has taken steps necessary to ascertain the nature and location of the Work and has investigated and satisfied itself as to the general and local conditions which can affect the Work or its cost, including but not limited to: (i) conditions bearing upon transportation, disposal, handling and storage of materials; (ii) the availability of labor, water, natural gas, electric power and roads; (iii) uncertainties of weather, river stages or similar physical conditions at the site; (iv) the conformation and conditions of the ground; and (v) the character of equipment and facilities needed preliminary to and during the Work;
4. It has satisfied itself as to character, quality and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including exploratory work done by the Owner as well as from the drawings and specifications provided as part of the bid package, and that any failure of the bidder to take such actions will not relieve the bidder from responsibility for estimating properly the difficulty and cost of successfully performing the Work;
5. It has received, read and reviewed the Contract, has submitted any questions in writing regarding the same and has received an answer to such questions;
6. Its bid is based upon the requirements of the Contract without exception;
7. It is in compliance with Title 72, Chapter 17, Idaho Code, regarding a drug-free workplace and has included the required affidavit regarding the same;
8. Its bid is in compliance with employment of persons authorized to work in the United States;
9. It will retain bid security and hold and honor all base bid prices for forty-five (45) calendar days from the date of bid opening, and cannot be withdrawn after the bid opening;
10. Its bid prices shown for each item on the bid proposal form include all labor, material, equipment, overhead and compensation to complete all of the Work for that item; and
11. It has included in its bid amount Idaho sales and/or use taxes on all materials and equipment and all other taxes imposed by law.

BID AWARD

AWARD METHOD: Public works construction contracts for the State of Idaho are awarded to the "lowest responsible and responsive bidder." The low bidder, for purposes of award, shall be the responsible and responsive bidder offering the low aggregate amount for the base bid item, plus any additive or deductive bid alternates selected by the Owner, and within funds available as determined by the Owner. Award is also subject to the requirements of Idaho Code, including without limitation: Title 67, Chapter 57; Title 67, Chapter 23; Title 54, Chapter 19; and Title 44, Chapter 10. It is the bidder's responsibility to conform to **ALL** applicable federal, state and local statutes or other applicable legal requirements. The information provided herein is intended to assist bidders in meeting applicable requirements but is not exhaustive and the Owner will not be responsible for any failure by any bidder to meet applicable requirements.

DETERMINATION OF RESPONSIBILITY: The Owner reserves the right to make reasonable inquiry about or from the submitting bidder or from third parties to determine the responsibility of a submitting bidder. Such inquiry may include, but not be limited to, inquiry regarding experience and expertise related to the Project, manpower and other resources, financial stability, credit ratings, references, potential subcontractors and past performance. The unreasonable failure of a submitting bidder to promptly supply any requested information may result in a finding of non-responsibility.

NOTICE OF EFFECTIVENESS: No Contract is effective until the authorized Owner's official has signed the Contract and the Notice to Proceed has been issued. The bidder shall not provide any goods or render services until the Contract has been signed by the Administrator of the Division of Public Works and the Contract has become effective. Furthermore, the Owner is in no way responsible for reimbursing the bidder for goods provided or services rendered prior to the signature of the authorized Division of Public Work's official and the arrival of the Notice to Proceed.

INCURRING COSTS: The Owner is not liable for any cost incurred by bidders prior to the Notice to Proceed.

PRIOR ACCEPTANCE OF DEFECTIVE BIDS OR PROPOSALS: The Owner generally will not completely review or analyze bids that appear to fail to comply with the requirements of the bid documents, nor will the Owner generally investigate the references or qualifications of those who submit such bids. Therefore, any acknowledgment that the selection is complete shall not operate as a representation by the Owner that an unsuccessful bid was responsive, complete, sufficient or lawful in any respect.

POST-AWARD SUBMITTALS: Upon receipt of a Notice of Intent to Award, the apparent low responsive and responsible bidder shall provide documentation required in such Notice. Such Notice of Intent to Award shall generally require the bidder to return to the Owner, within ten (10) days of receipt, a signed Contract, all required bonds, proof of insurance and documentation required by the Idaho State Tax Commission (report and affidavit).

OWNER'S RIGHT TO REJECT: Prior to execution of the Contract, the Owner or Design Professional shall provide written notice of any reasonable objection to any person or entity proposed by the bidder. Upon receipt of such notice, the bidder may withdraw its bid, without forfeiture, or propose a substitute and identify any change in any bid amount caused by such substitution. The Owner may accept or reject the substitution or the adjusted price. If the Owner rejects the substitution or the adjusted price, it will return the bidder's bid guarantee.

END OF INSTRUCTIONS

BID PROPOSAL

TO: STATE OF IDAHO
DIVISION OF PUBLIC WORKS

Gentlemen:

The Bidder, in compliance with your Invitation for Bids for the construction of 15251 – Entry Foyer & Main Stair Renovation, having examined the bidding and Contract Documents and the site of the proposed Work, and being familiar with all of the conditions surrounding the construction of the proposed Project, including the availability of materials and labor, hereby proposes to furnish all labor, materials and supplies and to provide the service and insurance in accordance with the Contract Documents, within the time set forth therein, and at the prices stated below. These prices are to cover all expenses incurred in performing the Work required under the Contract Documents.

Bidder hereby agrees to commence Work under this Contract on a date to be specified in the written "Notice to Proceed" of the Owner and to substantially complete the Project. Bidder further agrees to pay as liquidated damages, the sum of $500 for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order.

Bidder acknowledges receipt of Addenda No. _____.
(List all Addenda)

BASE PROPOSAL: Bidder agrees to perform all of the base proposal Work described in the specifications and shown on the plans for the sum of:

_____ Dollars ($_____)
(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

UNIT PRICE PROPOSAL - PLASTER REPAIR**:** It is anticipated that plaster repair will be required and since the exact quantity of plaster repair required is not possible to determine at this time, the bidder's unit price for plaster repair shall be multiplied by 500 Square Feet and added to the bidder's base bid price and included in the Fixed Price Contract Amount to determine the low responsive bid. The Fixed Price Contract Amount will be increased or decreased by multiplying the actual square feet of plaster repair by the unit price.

_____ Dollars ($_____) x 500 sf = $ _____

BASE PROPOSAL PLUS UNIT PRICE:

_____ Dollars ($_____)
(Amount shall be shown in both words and figures. In case of discrepancy, the amount shown in words will govern.)

Alternate No. 1: All sprinkler work shown in the first and second floor south wing corridor and the main north/south corridor on the first floor.

Add the sum of _____ Dollars ($_____)

Alternate No. 2: All work shown on the third floor of foyer. This does not include work indicated at the stair from the second to third floor, and work associated with exterior wood windows (see add alternate No. 4), work associated with the repair and restoration of wood floors on the third floor (base bid), and work associated with plaster repair (see add alternate No. 3). In addition, wood floor restoration/repair shall be included within the scope of work on all floors, and not part of this add alternate.

Add the sum of _____ Dollars ($_____)

Alternate No. 3: All plaster repair work shown on the third floor.

Add the sum of _____ Dollars ($_____)

Alternate No. 4: All work associated with exterior wood windows and doors as indicated in the door schedule, except repair, restoration and paint removal of sandstone surround at second floor.

Add the sum of _____ Dollars ($_____)

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good for a period of forty-five (45) calendar days after the scheduled opening time for receiving bids.

Upon receipt of written Notice of Intent to Award of this bid, Bidder will execute the formal Contract within ten (10) calendar days and deliver a Surety Bond or Bonds as required by paragraph “Performance and Payment Bonds” first page (ITB-1) of the Instructions to Bidders.

The bid security in the amount of five percent (5%) of the bid amount is to become the property of the Owner, in the event the Contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense to the Owner caused thereby.

The names and addresses of the entities who will perform the Work identified below, subject to approval of Owner and Architect, if Undersigned is awarded the Contract, are as follows:

Plumbing (PWCL Category 15400)

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Plumbing Contractors License No. _____

Heating, Ventilating & Air Conditioning (PWCL Category 15700-HVAC)

(Name)_____

(Address)_____

Idaho Public Works Contractors License No. _____

Idaho HVAC Contractors License No. _____

Electrical (PWCL Category 16000)

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

FAILURE TO NAME A PROPERLY LICENSED SUBCONTRACTOR IN EACH OF THE ABOVE CATEGORIES WILL RENDER THE BID UNRESPONSIVE AND VOID.

IDAPA 18.01.49 requires that the fire sprinkler contractor/subcontractor be licensed as an Idaho Fire Sprinkler Contractor. The Owner requests the name, address and license numbers of the contractor/subcontractor who will perform the fire sprinkler work, subject to approval of Owner and Architect, if undersigned is awarded the Contract:

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Fire Sprinkler Contractors License No. _____

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to the Fixed Price Construction Contract.

The undersigned notifies that it is of this date duly licensed as an Idaho Public Works Contractor and further that it possesses Idaho Public Works Contractor's License No. _____, and is domiciled in the State of _____.

Dated this _____ day of_____,_____.
(date) (month) (year)

Respectfully submitted by:

_____
(Company)

(Seal - if bid is by a corporation)

_____
(Street or PO Address)

_____
(City, State and zip code)

(Authorized Signature)

(Title)

(Telephone Number)

(FAX Number)

(Email Address)

Have you remembered to include bid security (bid bond or a certified or cashier's check), Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace and a signed copy of the Bidder's Acknowledgment Statement with your bid?

Execute and Submit with Bid

CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE

STATE OF _____

COUNTY OF _____

Pursuant to the Section 72-1717, Idaho Code, I, the undersigned, being duly sworn, depose and certify that _____ is in compliance with the provisions of Section 72-1717, Idaho Code; that _____ provides a drug-free workplace program that complies with the provisions of Title 72, Chapter 17, Idaho Code, and will maintain such program throughout the life of a state construction contract; and that _____ shall subcontract Work only to subcontractors meeting the requirements of Section 72-1717(1)(a), Idaho Code.

_____
Name of Contractor

_____
Address

_____
City and State

By: _____
(Signature)

Subscribed and sworn to before me this _____ day of _____, _____.

Commission expires:

_____
NOTARY PUBLIC, residing at

_____

_____

FAILURE TO EXECUTE THIS AFFIDAVIT AND SUBMIT IT ALONG WITH YOUR BID SHALL MAKE YOUR BID NON-RESPONSIVE.

Execute and Submit with Bid

BIDDER'S ACKNOWLEDGMENT STATEMENT

NOTE: THE INFORMATION CONTAINED HEREIN IS A SUMMARY OF VITAL CONTRACT PROVISIONS AND DOES NOT CHANGE THE CONTRACT DOCUMENTS THAT WILL GOVERN THIS PROJECT.

Division of Public Works Project No. 15251, Entry Foyer & Main Stair Renovation

By submitting a bid for this Project, the undersigned bidder agrees that, if awarded the Contract for construction, Contractor will conform to all conditions and requirements of the Contract, including but not limited to:

- Contractor agrees to comply with conditions pertaining to Sections 44-1001 and 44-1002, Idaho Code, requiring the employment of ninety-five percent (95%) bona fide Idaho residents and providing for a preference in the employment of bona fide Idaho residents and regarding the employment of persons not authorized to work in the United States.

- Contractor will substantially complete the Work within the time stated in the Contract Documents, or as modified by Change Order(s).

- If the Contractor fails to substantially complete the Project within the time stated in the Contract Documents, or as modified by Change Order, the Contractor agrees that the Owner may deduct from the Contract amount liquidated damages in the amount per calendar day, indicated in the Contract Documents, times the number of calendar days until the Project is Substantially Complete, as defined in the Contract Documents and as determined by the Design Professional.

- The Contractor agrees that the amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11 of the Fixed Price Construction Contract Between Owner and Contractor.

    1. For total changes of $10,000 or less in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed twenty percent (20%) of direct costs;

    2. For total changes exceeding $10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs; or

    3. The Contractor will determine the amount of overhead and profit to be apportioned between the Contractor and its subcontractor of allowable amounts of overhead, profit, bonds and insurance.

- The Contractor agrees that Change Orders are governed by the Fixed Price Construction Contract Between Owner and Contractor General Conditions of the Contract for Construction including as follows:

    1. By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed

or unknown conditions which may, to any extent, affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the Contract Sum or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order that could have reasonably been discovered or disclosed by the Contractor's examination.

2. Any Change Order fully executed by the Owner, Contractor and Design Professional, including but not limited to, a Change Order arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including but not limited to, all direct and consequential costs associated with such change and any and all adjustments to the Contract Price and Contract Time. In the event a Change Order increases the Contract Price, the Contractor shall include the Work covered by such Change Order in the Application for Payment as if such Work was originally part of the Project and Contract Documents.

FAILURE TO EXECUTE THIS ACKNOWLEDGMENT MAY MAKE YOUR BID NON-RESPONSIVE.

I, _____, being duly authorized to bind the
(type or print name of individual)

bidder, _____, does hereby certify that I have fully read
(type or print name of company)
and understand this document and that it highlights certain parts of the Contract that will be entered between the parties and that will govern this Project.

Authorized Signature: _____

Title: _____

Date: _____

END OF BIDDER'S ACKNOWLEDGMENT STATEMENT

DIVISION OF PUBLIC WORKS
FIXED PRICE CONSTRUCTION CONTRACT
BETWEEN OWNER AND CONTRACTOR

DPW PROJECT NO. 15251
Entry Foyer & Main Stair Renovation

University of Idaho – Administration Building
Moscow, Idaho

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FIXED PRICE CONSTRUCTION CONTRACT
BETWEEN OWNER AND CONTRACTOR

THIS FIXED PRICE CONSTRUCTION CONTRACT BETWEEN OWNER AND CONTRACTOR (the "Contract") is by and between the State of Idaho, Department of Administration, Division of Public Works ("DPW" or the "Owner") and _____(the "Contractor") and is for the construction of the project (the "Project") identified as DPW Project No. 15251, as more fully described in Exhibit A, and incorporated herein by reference. This Contract shall be effective on _____ (day) of _____ (month), 20__ (year), when executed by both parties.

In consideration of the mutual promises, covenants, and agreements stated herein, and for other good and valuable consideration, the sufficiency of which is hereby acknowledged, the Owner and the Contractor agree:

ARTICLE 1
CONTRACT DOCUMENTS

1.1 The Contract Documents consist of this Contract, the drawings and specifications for the Project (the "Drawings and Specifications") identified in Exhibit C and any Addenda thereto issued prior to execution of this Contract, written amendments signed by both the Owner and the Contractor, Change Orders signed by both the Owner and the Contractor, Construction Change Directives and any written orders by the Design Professional for minor changes in the Work (the "Contract Documents"). Documents not included or expressly contemplated in this Article 1 do not, and shall not, form any part of the Contract Documents.

1.2 The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations.

ARTICLE 2
REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

In order to induce the Owner to execute this Contract and recognizing that the Owner is relying thereon, the Contractor, by executing this Contract, makes the following express representations to the Owner:

2.1 The Contractor is fully qualified to act as the Contractor for the Project and has, and shall maintain, any and all licenses, permits or other authorizations necessary to act as the Contractor for, and to construct, the Project.

2.2 The Contractor has become familiar with the Project site and the local conditions under which the Project is to be constructed and operated particularly in correlation to the requirements of the Contract.

2.3 The Contractor has received, reviewed, compared, studied and carefully examined all of the documents which make up the Contract Documents, including the Drawings and Specifications, and any Addenda, and has found them in all respects to be complete, accurate, adequate, consistent, coordinated and sufficient for construction. Such review, comparison, study and examination shall be a warranty that the contractor believes that the documents are complete and the Project is buildable as described except as reported.

2.4 The Contractor warrants that the Contract Time is a reasonable period for performing the Work.

2.5 The Contractor warrants to the Owner and Design Professional that all labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; that the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and that the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse by Owner or its representatives, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality

of materials and equipment. This warranty shall survive the completion of the Contract and final payment to the Contractor.

ARTICLE 3
INTENT AND INTERPRETATION

With respect to the intent and interpretation of this Contract, the Owner and the Contractor agree as follows:

3.1 This Contract constitutes the entire and exclusive agreement between the parties with reference to the Project, and supersedes any and all prior discussions, communications, representations, understandings, negotiations or agreements. This Contract also supersedes any bid documents.

3.2 The intent of the Contract is to include all items necessary for the proper execution and completion of the Project and anything that may be required, implied or inferred by the documents which make up this Contract, or any one or more of them, shall be provided by the Contractor for the Fixed Price Contract Amount. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all.

3.3 Nothing contained in this Contract shall create, nor be interpreted to create, privity or any other relationship whatsoever between the Owner and any person or entity except the Contractor; provided, however, that the Design Professional is entitled to performance and enforcement of obligations under the Contract intended or necessary to facilitate its duties. Any reference to the Owner, the Contractor or the Design Professional shall be deemed to include authorized representatives.

3.4 When a word, term or phrase is used in this Contract, it shall be interpreted or construed first as defined herein; second, if not defined, according to its generally accepted meaning in the construction industry; and third, if there is no generally accepted meaning in the construction industry, according to its common and customary usage.

3.5 The words "include," "includes," or "including," as used in this Contract, shall be deemed to be followed by the phrase "without limitation."

3.6 The specification herein of any act, failure, refusal, omission, event, occurrence or condition as constituting a material breach of this Contract shall not imply that any other, non-specified act, failure, refusal, omission, event, occurrence or condition shall be deemed not to constitute a material breach of this Contract.

3.7 The Contractor shall have a continuing duty to read, examine, review, compare and contrast each of the documents which make up this Contract, shop drawings and other submittals, and shall give timely written notice to the Owner and the Design Professional of any conflict, ambiguity, error or omission which the Contractor may find with respect to these documents before proceeding with the affected Work.

3.8 The express or implied approval by the Owner or the Design Professional of any shop drawings or other submittals shall not relieve the Contractor of the continuing duties imposed hereby, nor shall any such approval be evidence of the Contractor's compliance with this Contract. The Owner has requested that the Design Professional prepare documents for the Project, including the Drawings and Specifications for the Project, which are accurate, adequate, consistent, coordinated and sufficient for construction. HOWEVER, THE OWNER MAKES NO REPRESENTATION OR WARRANTY OF ANY NATURE WHATSOEVER TO THE CONTRACTOR CONCERNING SUCH DOCUMENTS. The Contractor again hereby acknowledges and represents that it has received, reviewed and carefully examined such documents; has found them to be complete, accurate, adequate, consistent, coordinated and sufficient for construction; and that the Contractor has not, does not and will not rely upon any representations or warranties by the Owner concerning such documents, as no such representations or warranties have been or are hereby made.

3.9 In the event of any conflict among any of the documents which make up this Contract, the Design Professional shall interpret the documents, and the interpretation shall be binding on both the Owner and Contractor; provided, however, that this does not change the Owner's right to make decisions regarding Claims in accordance with Article 13 and Article 14. If no interpretation is provided by the Design Professional, the most stringent requirement in the Contract Documents will apply.

ARTICLE 4
OWNERSHIP OF DOCUMENTS

4.1 Unless otherwise agreed by the Design Professional and its consultants, the party that prepared the drawings, specifications and other documents is the author of such with all copyright, common law, statutory and other reserved rights. The Contractor may retain one (1) record set of the Drawings and Specifications and other documents but shall not own or claim any copyright in them.

The Drawings and Specifications and other documents, and any copies, are to be used solely for this Project, and not on any other project, or additions to this Project outside this Contract, without written consent of the Owner, the Design Professional and the Design Professional's consultants; provided, however, that copies may be made of applicable portions as necessary for completion of the Work. Such copies shall include any copyright notice on the Drawings and Specifications and other documents.

Submission to or use by a regulatory body related to this Project is an acceptable use.

ARTICLE 5
CONTRACTOR'S PERFORMANCE

The Contractor shall perform all of the Work required, implied or reasonably inferable from this Contract, including the following:

5.1 Construction of the Project.

5.2 The furnishing of any required surety bonds and insurance.

5.3 The provision or furnishing, and prompt payment therefore, of labor, supervision, services, materials, supplies, equipment, fixtures, appliances, facilities, tools, transportation, storage, power, fuel, heat, light, cooling or other utilities required for construction and all necessary permits, including any required elevator permits, required for the construction of the Project. Construction projects for the State of Idaho require a building permit issued by the Division of Building Safety.

5.4 The creation and submission of a detailed and comprehensive set of marked up blue or black-lined record drawings. Said record drawings shall be submitted to and approved by the Design Professional as a condition precedent to final payment to the Contractor.

ARTICLE 6
TIME FOR CONTRACTOR'S PERFORMANCE

6.1 The Contractor shall commence the performance of this Contract in accordance with the "Notice to Proceed" (Exhibit F) issued by the Owner and shall diligently continue its performance to and until final completion of the Project. The Contractor shall accomplish Substantial Completion of the Project on or before the time indicated in Exhibit A. The period of time, including any adjustments made under this Contract, for the Contractor to reach Substantial Completion is the "Contract Time."

6.2 The Contractor may be assessed by and be responsible to the Owner for the amount indicated in Exhibit A per day for each and every calendar day of unexcused delay in achieving Substantial Completion beyond the date set forth for Substantial Completion. Any sums owed hereunder by the Contractor shall be payable not as a penalty but as liquidated damages, representing an estimate of delay damages likely to be sustained by the Owner estimated at the time of this Contract. When the Owner reasonably believes that Substantial Completion will be inexcusably delayed, the Owner shall be entitled, but not required, to withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving Substantial Completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer

applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

6.3 The term "Substantial Completion," as used herein, shall mean that point at which, as certified in writing by the Design Professional, or if there is no Design Professional, as certified by the Owner, the entire Project is at a level of completion in strict compliance with the Contract Documents, such that the Owner or its designee can enjoy beneficial use or occupancy and can use or operate it in all respects for its intended purpose. If, in the reasonable determination of the Owner, receipt of operation and maintenance manuals or completion of training is necessary for such beneficial use or occupancy, then there shall be no Substantial Completion until such manuals are provided or such training is completed. Partial use or occupancy of the Project shall not result in the Project being deemed substantially complete, or accepted as substantially complete, and such partial use or occupancy shall not be evidence of Substantial Completion. The Project shall not be deemed accepted until it is finally complete.

6.4 Any request by the Contractor for an extension of the Contract Time must be made in accordance with, and is subject to, Article 13 and Article 14 related to Claims.

6.5 The Owner shall have no liability of any kind to the Contractor if a schedule or other document submitted by the Contractor shows an intention to complete the Work prior to the scheduled completion date and for any reason other than Owner caused delay, the Contractor is not able to achieve such early completion.

ARTICLE 7
FIXED PRICE AND CONTRACT PAYMENTS

7.1 The Owner shall pay, and the Contractor shall accept, as full and complete payment for the Contractor's timely performance of its obligations hereunder, the Fixed Price Contract Amount indicated in Exhibit A. The Fixed Price Contract Amount shall not be modified except as provided in this Contract.

7.2 Prior to submitting its first pay application, the Contractor shall prepare and present to the Owner and the Design Professional the Contractor's Schedule of Values apportioning the Fixed Price Contract Amount among the different elements of the Project for purposes of periodic and final payment. The Contractor's Schedule of Values shall be presented in whatever format, with such detail, and backed up with whatever supporting information the Design Professional or the Owner reasonably requests. The Contractor shall not imbalance it's Schedule of Values nor artificially inflate any element thereof. The violation of this provision by the Contractor shall constitute a material breach of this Contract. The Contractor's Schedule of Values will be utilized for the Contractor's requests for payment but shall only be so utilized after it has been approved in writing by the Design Professional.

7.3 The Owner shall pay the Fixed Price Contract Amount to the Contractor in accordance with the procedures set forth in this Article. The Contractor shall submit a Contractor's Request for Payment, on or before the day of each month indicated in Exhibit A or otherwise agreed to, after commencement of performance, but no more frequently than once monthly. Said payment request shall be on Owner's standard form, or an alternate form approved by the Owner, and shall include whatever supporting information as may be required by the Design Professional, the Owner or both. Therein, the Contractor may request payment for one hundred percent (100%) of the Work satisfactorily completed to the date of the Contractor's Request for Payment, less five percent (5%) retainage, based on the Fixed Price Contract Amount allocated on the Schedule of Values. The Contractor's Request for Payment may include only: properly provided labor, materials or equipment properly incorporated into the Project, and time and materials or equipment necessary for the Project or that will be incorporated into the Project and are properly stored at the Project site (or elsewhere if off-site storage is approved in writing by the Owner). The Contractor's Request for Payment must exclude the total amount of previous payments received from the Owner. Any payment on account of stored materials or equipment will be subject to the Contractor providing written proof that the Owner has title to such materials or equipment and that they are fully insured against loss or damage. Each such Contractor's Request for Payment shall be signed by the Contractor and its submission shall constitute the Contractor's affirmative representation that the quantity of Work has reached the level for which payment is requested; that the Work has been properly installed or performed in strict compliance with the Contract; that all Work for which the Owner has previously paid is free and clear of any lien, claim or other encumbrance of any person whatsoever; and that the Contractor knows of no reason why payment should not be made as requested. As a condition precedent to payment, the Contractor shall, if required by the Owner, furnish to the Owner properly executed waivers or releases, in a form acceptable to the Owner, from all subcontractors, materialmen, suppliers or others having any claims or alleged claims, wherein said subcontractors,

materialmen, suppliers or others shall acknowledge receipt of all sums due pursuant to all prior Contractor's Requests for Payment, and waive and relinquish any rights or other claims relating to the Project or Project site. The submission by the Contractor of the Contractor's Request for Payment also constitutes the Contractor's affirmative representation that, upon payment of the Contractor's Request for Payment submitted, title to all Work included in such payment shall be vested in the Owner.

Thereafter, the Design Professional shall review the Contractor's Request for Payment and may also review the Work at the Project site or elsewhere to determine whether the quantity and quality of the Work are as represented in the Contractor's Request for Payment and as required by this Contract. The Design Professional shall approve in writing the amount which, in the opinion of the Design Professional, is properly owing to the Contractor and such approval is required before the Owner shall have any payment obligation. The Design Professional may withhold such approval, in whole or in part, as necessary to protect the Owner if it reasonably believes that the quantity or quality of the Work is not as represented in the Contractor's Request for Payment or is not in strict conformance to the Contract Documents.

7.4 The Owner shall make payment to the Contractor no more than twenty-one (21) days following receipt by the Owner of the Design Professional's written approval of each Contractor's Request for Payment. The amount of each such payment shall be the amount approved for payment by the Design Professional less such amounts, if any, otherwise owing by the Contractor to the Owner or which the Owner shall have the right to withhold as authorized by this Contract. The Design Professional's approval of the Contractor's Request for Payment shall not preclude the Owner from the exercise of any of its rights it may have in this Contract, at law or in equity, as set forth in Paragraph 7.8 hereinafter.

7.5 Off-site storage will not be approved at locations more than thirty (30) miles from the Project site or outside the State of Idaho and any payment for any off-site storage is subject to the following:

.1 The Contractor must provide at least thirty (30) days' advance written notice of its request to store off-site. Such notice must include a description of the type, quantities, locations and values of materials involved for the next billing cycle. All invoices must indicate the type, quantities and value of materials or equipment for which payment is requested;

.2 All materials stored off-site must be segregated and clearly marked with the DPW Project number and as being the "Property of the State of Idaho;"

.3 The Design Professional and/or the Owner's Field Representative must have unrestricted access to the stored materials during all business hours and may physically inventory all invoiced materials and equipment and may physically inspect the storage conditions;

.4 The Contractor must provide written Consent of Surety to off-site storage of materials and equipment and to payment for such materials and equipment prior to incorporation in the Work. Consent must be from the Surety. Consent of local broker or agent is not acceptable;

.5 The Contractor must maintain and must provide to the Design Professional, upon request, a current log of stored materials and equipment, which reflects when materials and equipment are used or added; and

.6 The Contractor must obtain and maintain all risk property insurance at replacement cost, with the State of Idaho listed as loss payee on all materials and equipment stored off-site and in transit.

7.6 When payment is received from the Owner, the Contractor shall immediately pay all subcontractors, materialmen, laborer and suppliers the amounts they are due for the Work covered by such payment. The Contractor shall not withhold from a subcontractor or supplier more than the percentage withheld from a payment certificate for the subcontractor's or supplier's portion of the Work. In the event the Owner becomes informed that the Contractor has not paid a subcontractor, materialmen, laborer or supplier as provided herein, the Owner shall have the right, but not the duty, to issue future checks and payment to the Contractor of amounts otherwise due hereunder naming the Contractor and any such subcontractor, materialmen, laborer or supplier as joint payees. Such joint check procedure, if employed by the Owner, shall create no rights in favor of any person or entity beyond the right of the named payees to payment of the check and shall not be deemed to commit the Owner to repeat the procedure in the future.

7.7 Payment to the Contractor, utilization of the Project for any purpose by the Owner, or any other act or omission by the Owner shall not be interpreted or construed as an acceptance of any Work of the Contractor not strictly in compliance with this Contract.

7.8 The Owner shall have and be entitled to the right to refuse to make any payment, including by reducing payment under any Contractor's Request for Payment, and, if necessary, may demand the return of a portion or all of an amount previously paid to the Contractor for reasons that include the following:

.1 The quality of the Contractor's work, in whole or part, is not in strict accordance with the requirements of this Contract or identified defective work, including punch list work, is not remedied as required by the Contract Documents;

.2 The quantity of the Contractor's work, in whole or in part, is not as represented in the Contractor's Request for Payment or otherwise;

.3 The Contractor's rate of progress is such that, in the Owner's opinion, Substantial Completion or final completion, or both, may be inexcusably delayed or that the Owner will incur additional costs or expense related to repeated Substantial Completion or final completion inspections through no fault of the Owner;

.4 The Owner reasonably believes that the Contractor has failed to use Contract funds, previously paid the Contractor by the Owner, to pay Contractor's project-related obligations, including subcontractors, laborers and material and equipment suppliers;

.5 There are claims made or it seems reasonably likely that claims will be made, against the Owner;

.6 The Contractor has caused a loss or damage to the Owner, the Design Professional or another contractor;

.7 The Owner reasonably believes that the Project cannot be completed for the unpaid balance of the Fixed Price Contract Amount or the Owner reasonably believes that the Project cannot be completed within the Contract Time and that the unpaid balance of the Fixed Price Contract Amount would be inadequate to cover the cost of actual or liquidated damages for the anticipated delay;

.8 The Contractor fails or refuses to perform any of its obligations to the Owner; or

.9 The Contractor fails to pay taxes as required by Title 63, Chapter 15, Idaho Code.

In the event that the Owner makes written demand upon the Contractor for amounts previously paid by the Owner as contemplated in Paragraph 7.8, the Contractor shall promptly comply with such demand.

7.9 If the Owner, without cause, fails to pay the Contractor any amounts due and payable thirty (30) days after those amounts are due pursuant to Paragraph 7.4, the Contractor shall have the right to cease the Work until receipt of proper payment. Contractor must first provide written notice to the Owner of the Contractor's intent to cease the Work ten (10) days prior to stopping the Work under this Paragraph. If any amounts remain unpaid after fifty-one (51) days after the Design Professional approves the Contractor's Request for Payment under Paragraph 7.4, interest at the rate of four percent (4%) per annum shall accrue on those unpaid amounts.

7.10 When Contractor considers Substantial Completion has been achieved, the Contractor shall notify the Owner and the Design Professional in writing and shall furnish to the Design Professional a listing of those matters yet to be finished. The Design Professional will thereupon conduct an inspection to confirm that the Work is, in fact, substantially complete. Upon its confirmation that the Contractor's work is substantially complete, the Design Professional will so notify the Owner and Contractor in writing and will therein set forth the date of Substantial Completion. The Owner and the Contractor must accept the date of Substantial Completion in writing. Guarantees and warranties required by this Contract shall commence on the date of Substantial Completion. At the Contractor's Request for Payment following Substantial Completion, the Owner shall pay the Contractor an amount sufficient to increase total payments to the Contractor to ninety-five percent (95%) of the Fixed Price Contract Amount, less any liquidated damages, less the reasonable costs as determined by the Design Professional for completing all incomplete work, correcting and bringing into conformance all defective and nonconforming work, and handling any outstanding or potential claims. If the Design Professional determines that the Contractor has made or is making satisfactory progress on any uncompleted portions of the Work, the Owner may, at its discretion, release a portion of the retainage to the Contractor prior to the actual final completion of the conditions set forth in Paragraph 7.13. It is

the intent of the parties that the Project will be accepted only in total (at Substantial Completion and final completion) and not in phases unless provided for in Exhibit A. Any acceptance other than in total shall require written agreement of Owner and Design Professional.

7.11 When Contractor considers the Project is at final completion, it shall notify the Owner and the Design Professional thereof in writing. Thereupon, the Design Professional will perform a final inspection of the Project. If the Design Professional confirms that the Project is complete in full accordance with the Contract Documents and that the Contractor has performed all of its obligations to the Owner, the Design Professional will furnish a final approval for payment to the Owner certifying to the Owner that the Project is complete and the Contractor is entitled to the remainder of the unpaid Fixed Price Contract Amount, less any amount withheld pursuant to this Contract.

7.12 If the Contractor fails to achieve final completion within a reasonable number of days as established by the Design Professional from the date of Substantial Completion, the Contractor may be assessed and be responsible to the Owner for fifty percent (50%) of the daily amount of liquidated damages as established pursuant to Paragraph 6.2 and Exhibit A, per day for each and every calendar day of unexcused delay in achieving final completion beyond the date established for final completion of the Work. Any sums due and payable hereunder by the Contractor shall be payable not as a penalty but as liquidated damages representing an estimate of delay damages likely to be sustained by the Owner, estimated at or before the time of executing this Contract. When the Owner reasonably believes that final completion will be inexcusably delayed, the Owner may withhold from any amounts otherwise due the Contractor an amount then believed by the Owner to be adequate to recover liquidated damages applicable to such delays. If and when the Contractor overcomes the delay in achieving final completion, or any part thereof, for which the Owner has withheld payment, the Owner shall promptly release to the Contractor those funds withheld, but no longer applicable, as liquidated damages. The Owner's right to liquidated damages is not, and shall not be deemed to be, an exclusive remedy for delay and the Owner shall retain all remedies at law or in equity for delay or other breach.

7.13 As a condition precedent to final payment, the Contractor must furnish the Owner, in the form and manner required by Owner, and with a copy to the Design Professional of the following:

.1 An affidavit that all of the Contractor's obligations to subcontractors, laborers, equipment or material suppliers or other third parties in connection with the Project have been paid or otherwise satisfied;

.2 A release by the Contractor of all Claims it has or might have against the Owner or the Owner's property (DPW's form, Exhibit H);

.3 Contractor's Affidavit of Debts and Claims (AIA Document G706);

.4 Consent of Surety to final payment (AIA Document G707);

.5 Confirmation of all required training, product warranties, operating manuals, instruction manuals and other record documents, drawings and things customarily required of the Contractor; and

.6 A Public Works Contract Tax Release issued by the Idaho Tax Commission (See "Request for Tax Release" form, Exhibit G, to be submitted by Contractor to the Idaho Tax Commission).

7.14 The Owner shall, subject to its rights set forth in this Contract, make final payment of all sums due the Contractor within thirty (30) days of the Design Professional's execution of a final approval for payment and receipt of documentation required by Paragraph 7.13, whichever is received later.

ARTICLE 8
INFORMATION AND MATERIAL SUPPLIED BY THE OWNER

8.1 The Administrator of DPW or his designee shall be the sole representative of the State of Idaho. The Design Professional shall have authority to bind Owner only as specifically set forth in this Contract.

8.2 The Owner will assign a Project Manager and a Field Representative to represent the Owner, identified in Exhibit B. The Owner's Field Representative's duties, responsibilities and limitations of authority are in accordance with DPW's policies and procedures.

8.3 The Owner shall furnish to the Contractor, prior to the execution of this Contract, any and all written and tangible material in its possession concerning conditions below ground at the site of the Project. Such written and tangible material is furnished to the Contractor only in order to make complete disclosure of such material as being in the possession of the Owner and for no other purpose. By furnishing such material, the Owner does not represent, warrant or guarantee its accuracy, either in whole in part, implicitly or explicitly.

8.4 The Owner will secure and pay for all required easements, the plan check fee required by the Division of Building Safety, conditional use permits and any other permits and fees specifically indicated in the Contract Documents to be secured and paid for by the Owner.

8.5 The Owner will provide the Contractor one (1) copy of this complete Contract and the number of sets of Drawings and Project Manuals (including Specifications) as indicated in Exhibit A. The Contractor may purchase additional copies, at its expense, from the Design Professional.

ARTICLE 9
STOP WORK ORDER

9.1 In the event the Contractor fails or refuses to perform the Work as required or fails or refuses to correct nonconforming Work, the Owner may instruct the Contractor to stop Work in whole or in part. Upon receipt of such instruction, the Contractor shall immediately stop as instructed by the Owner and shall not proceed further until the cause for the Owner's instructions has been corrected, no longer exists or the Owner instructs that the Work may resume. In the event the Owner issues such instructions to stop, and in the further event that the Contractor fails and refuses within seven (7) days of receipt of same to provide adequate assurance to the Owner that the cause of such instructions will be eliminated or corrected, then the Owner shall have the right, but not the obligation, to carry out the Work with its own forces or with the forces of another contractor, and the Contractor shall be fully responsible and liable for the costs of performing such Work by the Owner. Without limiting what else might constitute nonconforming Work, the existence of a gross safety violation or other situation or condition that creates, or could imminently create, a threat of serious harm to persons or property, shall constitute nonconforming Work and any order to stop the Work issued for such reason shall not be considered an interference with the Contractor’s performance of the Work or its means and methods. The rights set forth herein are in addition to, and without prejudice to, any other rights or remedies the Owner may have against the Contractor.

9.2 Any order to stop the Work issued pursuant to Paragraph 9.1 shall not be used to justify any Claim by the Contractor for additional time or money.

ARTICLE 10
DUTIES, OBLIGATIONS AND RESPONSIBILITIES OF THE CONTRACTOR

In addition to any and all other duties, obligations and responsibilities of the Contractor set forth in this Contract, the Contractor shall have and perform the following duties, obligations and responsibilities to the Owner:

10.1 The Contractor's continuing duties set forth in Paragraph 3.7 are by reference hereby incorporated in this Paragraph 10.1. The Contractor shall not perform Work without adequate plans and specifications or, as appropriate, approved shop drawings or other submittals. If the Contractor performs Work knowing or believing it involves an error, inconsistency or omission in the Contract without first providing written notice to the Design Professional and Owner, the Contractor shall be responsible for such Work and shall pay the cost of correcting same.

10.2 The Contractor shall take field measurements and verify field conditions and shall carefully compare such field measurements and conditions and other information known to the Contractor with the Contract Documents before commencing Work. Errors, inconsistencies or omissions discovered shall be reported to the Design Professional, the Owner and the Owner's Field Representative immediately. Such examination, review and comparison shall be a warranty that the Contract Documents are complete and the Project is buildable as described except as reported. Reported errors, inconsistencies or omissions will constitute a request for an interpretation by the Design Professional and may constitute a claim pursuant to Article 13 hereof where appropriate.

10.3 The Contractor shall ensure that all Work shall strictly conform to the requirements of this Contract.

10.4 The Work shall be strictly supervised, the Contractor bearing full responsibility for any and all acts or omissions of those engaged in the Work on behalf of the Contractor.

10.5 All labor furnished on this Project shall be competent to perform the tasks undertaken; materials and equipment furnished under the Contract will be new and of high quality unless otherwise required or permitted by the Contract Documents; the Work will be complete, of high quality and free from defects not inherent in the quality required or permitted; and the Work will strictly conform to the requirements of the Contract Documents. Any Work not strictly conforming to these requirements, including substitutions not properly approved and authorized, shall be considered defective.

10.6 Except as provided in Paragraph 8.4, the Contractor shall secure or provide and pay for all licenses, permits required by the Idaho Division of Building Safety, governmental approvals and inspections, connections for outside services for the use of municipal or private property for storage of materials, parking, utility services, temporary obstructions, enclosures or opening and patching of streets, and for all other facilities and services necessary for proper execution and completion of the Project.

10.7 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities bearing on performance of the Work.

10.8 The Contractor shall employ and maintain at the Project site only competent supervisory personnel. Key supervisory personnel assigned by the Contractor to this Project are as listed in Exhibit B.

10.9 The Contractor shall employ a competent superintendent and necessary assistants, as needed, to oversee execution of the Work. The superintendent shall be in attendance at the Project site during the progress of the Work. The superintendent and any project manager, if the Contractor utilizes a project manager, shall be reviewed and must be approved by the Design Professional and Owner, and neither shall be changed except with the consent of the Design Professional and Owner, unless the superintendent and/or project manager cease to be employed by the Contractor. Under this circumstance, any new superintendent or new project manager must be satisfactory to the Design Professional and Owner. Such approval shall not be unreasonably withheld. The superintendent and any project manager shall represent the Contractor and all communications given to the superintendent or project manager are deemed given to the Contractor.

10.10 So long as the individuals named above remain actively employed or retained by the Contractor, they shall perform the functions indicated next to their names unless the Owner agrees to the contrary in writing. In the event one or more individuals not listed in Paragraph 10.9 subsequently assumes one or more of those functions listed in Paragraph 10.9, the Contractor shall be bound by the provisions of this paragraph as though such individuals had been listed in Paragraph 10.9.

10.11 The Contractor shall provide to the Owner and the Design Professional a milestone schedule for completing the Work within the Contract Time. Such schedule shall be in a form specified in Division 1 of the Specifications and be acceptable to the Owner and to the Design Professional. The schedule must be submitted to and accepted by the Design Professional prior to the first request for payment unless required earlier by Division 1 of the Specifications. The Contractor's milestone schedule must be updated as required by the Design Professional and/or the Owner to reflect conditions encountered and shall apply to the total Project. The Contractor's revisions to the schedule shall not constitute a waiver of the requirement to complete the Project in the time allowed by the Contract, unless additional time for performance has been allowed pursuant to a Change Order. Any changes in milestone begin or end dates must be furnished to the Owner and the Design Professional. Strict compliance with the requirements of this Paragraph shall be a condition precedent to the payment to the Contractor and failure by the Contractor to strictly comply with said requirements shall constitute a material breach of this Contract.

10.12 Unless otherwise provided in the Construction Documents, on all projects where the Fixed Price Contract Amount is over $1,000,000, the Contractor shall schedule and perform the Work in accordance with a Critical Path Method (“CPM”) to indicate the rate of progress and practical order of the Project. The purpose of this scheduling requirement is to assure adequate planning, coordination and execution of the Work. The schedule shall indicate the dates for starting and completing major work activities, project events, major equipment, material and equipment submittals and delivery of major items. Project activities having critical time restraints on action, required by the Owner, shall be shown as scheduled milestones. The Contractor's schedule shall demonstrate the order, interdependence and sequence of activities. Critical paths shall be highlighted or distinguished. The schedule shall include all the dates specified in the Contract for Substantial Completion and final completion of the Work. The time

limit set forth in the Contract for Substantial Completion and final completion must govern; the schedule must be adjusted to meet these dates. Schedule float shall belong to the Project. The Contractor shall submit to the Owner and Design Professional a CPM schedule within three (3) weeks after award of the Contract and maintain such schedule on a current basis in accordance with the Contract Documents.

10.13 Once a month, or at intervals as required by the Design Professional, the Contractor shall advise the Owner and the Design Professional of the status of the Work (in duplicate) on the current milestone schedule. If any project milestone dates are not met on schedule, the Contractor shall immediately advise the Owner and Design Professional in writing of the proposed action to bring the Work on schedule. The Contractor shall also submit a detailed short term schedule, as required by Division 1 of the Specifications, each month. This short term schedule shall include a description of current and anticipated problem areas, delaying factors and their impact, and explanation of corrective action taken or proposed. If the Work is behind schedule, the Contractor shall indicate what measures it will take to put the Work back on schedule.

10.14 If the Work is not progressing through no fault of the Owner or the Design Professional, as shown on the milestone schedule, as determined by the Design Professional, and the Owner and the Design Professional do not believe the Contractor's proposed action to bring the Work on schedule is adequate, then the Contractor shall be deemed in default under this Contract and the progress of the Work shall be deemed unsatisfactory. In such event, the Owner, at its discretion, may require the Contractor to work such additional time over regular hours, including Saturdays, Sundays and holidays, without additional cost to the Owner to bring the Work on schedule.

10.15 The Contractor shall keep an updated copy of the Drawings and Project Manual (including Specifications) and Addenda at the site. Additionally, the Contractor shall keep a current submittal schedule and a copy of approved shop drawings and other submittals. All of these items shall be available to the Owner and the Design Professional at all regular business hours. Upon final completion of the Work, all of these items must be updated by the Contractor and provided to the Design Professional and shall become the property of the Owner.

10.16 The Contractor shall carefully review and inspect for compliance with the Contract Documents, the shop drawings and other submittals (including product data and samples) required by the Contract Documents and shall submit to the Design Professional only submittals approved in accordance with this section. Such review and submittal shall be done promptly and in a sequence that will not delay its Work under this Contract or the activities of the Owner or of separate contractors. Shop drawings and other submittals from the Contractor do not constitute a part of the Contract. The Contractor shall not do any work requiring shop drawings or other submittals unless the Design Professional has verified compliance in writing. All Work requiring verified shop drawings or other submittals shall be done in strict compliance with such approved documents. However, verification of compliance by the Design Professional shall not be evidence that Work installed pursuant thereto conforms with the requirements of this Contract. The Design Professional shall have no duty to review submittals that are not Contractor approved, partial submittals or incomplete submittals. The Contractor shall maintain a submittal log which shall include, at a minimum, the date of each submittal, the date of any re-submittal, the date of any approval or rejection and the reason for any rejection.

10.17 The Contractor shall maintain the Project site in a reasonably clean condition during performance of the Work. Upon final completion, the Contractor shall thoroughly clean the Project site of all debris, trash and excess materials or equipment.

10.18 At all times relevant to this Contract, the Owner and the Design Professional shall have a right to enter the Project site and the Contractor shall allow the Owner and/or the Design Professional to review or inspect the work without formality or other procedure.

10.19 The presence or duties of the Design Professional’s or the Owner's personnel or representatives at the construction site, does not make any of them responsible for those duties that belong to the Contractor or other entities and does not relieve the Contractor or any other entities of their obligations, duties and responsibilities, including any obligation or requirement to have or to implement any health or safety plans or precautions. Except as provided in Paragraph 10.9, Design Professional's and Owner's personnel have no authority to exercise any control over any Contractor or other entities or their employees in connection with their work or any health or safety precautions and have no duty for inspecting, noting, observing, correcting or reporting on health or safety deficiencies of the Contractor or other entities or any other persons at the site except their own personnel. The presence of Design Professional’s or Owner's personnel at a construction site is for the purpose of providing to Owner a greater degree of confidence that the completed Work will conform to the Contract Documents and that the integrity of the design

concept as reflected in the Contract Documents has been implemented and preserved by the Contractor. For this Contract only, construction sites include places of manufacture for materials incorporated into the construction Work and Contractor includes manufacturers of materials incorporated into the construction Work.

ARTICLE 11
INDEMNITY

11.1 The Contractor shall defend, indemnify and hold harmless the Owner, Design Professional, and their employees, officers and agents harmless from any and all claims, liabilities, damages, losses, costs and expenses of every type whatsoever, including attorney fees and expenses, arising out of or resulting from the Contractor's work, acts or omissions under or related to the Contract Documents, to the extent caused by the Contractor, or anyone for whose acts the Contractor may be liable, regardless of whether such liability, claim, damage, loss, cost or expense is caused in part by the Owner.

11.2 The limits of any insurance of the Contractor shall not be, and shall not be deemed to be, a limitation of the Contractor's defense and indemnity obligations contained in this Article.

11.3 In claims against any person or entity indemnified under this Article by an employee of the Contractor, a subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under this Article shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or a subcontractor under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

ARTICLE 12
THE DESIGN PROFESSIONAL

The Design Professional for this Project is identified in Exhibit B, incorporated herein by reference, along with any authorized representatives and any limitations of responsibility. For the purpose of this Contract, the "Design Professional" means the properly licensed architect, properly registered professional engineer or other professional licensed in the State of Idaho who prepared the Drawings and Specifications for this Project. If the employment of the Design Professional is terminated, the Owner may retain a replacement professional and the role of the replacement professional shall be the same as the role of the Design Professional. Unless otherwise directed by the Owner in writing, the Design Professional will perform those duties and discharge those responsibilities allocated to the Design Professional in this Contract. The duties, obligations and responsibilities of the Design Professional shall for contract administration and include the following:

12.1 Unless otherwise directed by the Owner in writing, the Design Professional shall not act as the Owner's agent.

12.2 Unless otherwise directed by the Owner in writing, the Owner and the Contractor shall communicate with each other through the Design Professional.

12.3 When requested by the Owner or Contractor in writing, the Design Professional shall within seven (7) days render written interpretations necessary for the proper execution or progress of the Work or shall provide a written explanation as to why more time is needed and provide a date by which it will be provided.

12.4 The Design Professional shall draft proposed change authorization(s).

12.5 The Design Professional shall review and verify compliance or respond otherwise as necessary concerning shop drawings or other submittals received from the Contractor.

12.6 The Design Professional shall be authorized to refuse to accept Work that is defective or otherwise fails to comply with the requirements of this Contract. If the Design Professional deems it appropriate, the Design Professional may, with the Owner's consent, require extra inspections or testing of the Work for compliance with the requirements of this Contract.

12.7 The Design Professional shall review the Contractor's Request for Payment and shall verify in writing those amounts which, in the opinion of the Design Professional, are properly owing to the Contractor as provided in this Contract.

12.8 The Design Professional shall, upon written request from the Contractor, perform Substantial Completion and final completion inspections contemplated by Article 6.

12.9 The Design Professional may require the Contractor to make changes which do not involve a change in the Fixed Price Contract Amount or in the Contract Time consistent with the intent of this Contract. Such changes shall be given to the Contractor in writing under signature of the Design Professional, with a copy to the Owner, and may be in the form of a supplemental instruction.

12.10 The Design Professional shall review and evaluate Claims and take other actions related to Claims in accordance with Articles 13 and 14.

12.11 The duties, obligations and responsibilities of the Contractor under this Contract shall in no manner whatsoever be changed, altered, discharged, released or satisfied by any duty, obligation or responsibility of the Design Professional. The Contractor is not a third-party beneficiary of any Contract by and between the Owner and the Design Professional. It is expressly acknowledged and agreed that the duties of the Contractor to the Owner are independent of, and are not diminished by, any duties of the Design Professional to the Owner.

ARTICLE 13
CLAIMS

13.1 For purposes of this Contract, a “Claim” means a demand by the Contractor to the Owner, or by the Owner to the Contractor, for a change in the Fixed Price Contract Amount, an extension of the Contract Time, an adjustment to or interpretation of the Contract terms, or other relief with respect to the terms of the Contract, which demand the Contractor or Owner asserts is required or allowed under the Contract Documents and which the Contractor and the Owner have previously discussed and failed to agree upon.

13.2 For the Claim to be considered, it must meet the following requirements:

.1 The Claim must be in writing;

.2 The Claim by the Contractor must be signed by an authorized representative of the Contractor, and the Claim by the Owner must be signed by an authorized representative of the Owner;

.3 The Claim by the Contractor must be provided to the Owner and to the Design Professional and the Claim by the Owner must be provided to the Contractor and to the Design Professional;

.4 The Claim must be made no later than ten (10) days after the event or first appearance of the circumstance giving rise to the Claim;

.5 The Claim must describe in detail all known facts and circumstances that the Contractor or Owner asserts support the Claim;

.6 The Claim must refer to the provision(s) of the Contract Documents that the Contractor or Owner asserts support the Claim;

.7 The Contractor or Owner must provide all documentation or other information to substantiate the Claim; and

.8 The Contractor or Owner must continue its performance under this Contract pending the resolution of any Claim; provided, however, that the Contractor shall not perform any additional or changed work not otherwise authorized in accordance with the Contract Documents.

13.3 The failure by the Contractor to meet any of the requirements of Paragraph 13.2 shall constitute a complete wavier by the Contractor of any rights arising from or related to the Claim. Similarly, the failure by the Owner to meet

any of the requirements of Paragraph 13.2 shall constitute a complete waiver by the Owner of any rights arising from or related to the Claim.

13.4 If the Claim is made based on concealed or unknown site conditions, the following shall apply in addition to all other provisions applicable to the Claim:

.1 The condition must have been previously concealed and unknown or of a type not ordinarily encountered in the general geographic location of the Project and must not have been reasonably susceptible to discovery; and

.2 The Contractor shall notify the Design Professional and the Owner of the condition and shall not disturb the condition until the Design Professional and Owner have observed it or have waived in writing the right to observe it.

13.5 If the Claim by the Contractor is for an increase in the Fixed Price Contract Amount, the following shall apply in addition to all other provisions applicable to the Claim:

.1 Any increase in the Fixed Price Contract Amount shall be strictly limited to the direct costs incurred by the Contractor and shall not include any other costs, indirect or other, including any costs for or related to lost productivity, profit, home office overhead and any other overhead, legal fees, claim preparation, any matter previously resolved by a change order, equipment costs, costs related to the services of a project manager unless the project manager was required full time by the Owner or the Contract Documents, any costs associated with the failure to complete the Work early or in advance of the date required by the Contract Documents, it being specifically agreed to by the parties that there is no intention to have the Eichleay or other similar formula applicable to this Contract nor shall this Contract be deemed to be subject to any such formula; and

.2 The Owner shall have no liability for, and the Fixed Price Contract Amount shall not be increased related to, any claims of third parties, including subcontractors, unless and until the liability of the Contractor for such has been established in a court of competent jurisdiction and any such liability of the Owner shall be limited in the same manner as described in subparagraph 13.5.1.

13.6 If the Claim by the Owner is for a change in the Fixed Price Contract Amount, all other applicable provisions to the Claim apply.

13.7 If the Claim by the Contractor is for an extension of the Contract Time, the following shall apply in addition to all other provisions applicable to the Claim:

.1 The Contractor has been delayed in its performance by an act or omission of the Owner and through no fault of the Contractor;

.2 The Contractor has been delayed in its performance by unusually severe weather that could not reasonably have been anticipated or by another event not within its reasonable control;

.3 At the time it occurs or during its occurrence, the delay will preclude completion of the Project in the time required by the Contract Documents; and

.4 Any extension of the Contract Time shall be the Contractor's sole and exclusive remedy for any delay except a delay caused by the active interference of the Owner with the Contractor's performance which active interference continues after written notice to the Owner. The Owner's exercise of any of its rights or remedies under this Contract, including ordering changes in the Work, directing suspension, rescheduling or correction of the Work, do not constitute active interference.

13.8 If a Claim is made based on an error, inconsistency or omission in the Contract that was reasonably susceptible to discovery by the Contractor and was not reported in accordance with Paragraph 2.3, that Claim shall be denied.

ARTICLE 14
RESOLUTION OF CLAIMS

14.1 All Claims made in accordance with Article 13 shall be reviewed and evaluated by the Design Professional. If the Claim is not made in strict accordance with Article 13, it shall be rejected as waived. Any failure by the Design Professional to reject the Claim for failure to meet the requirements of Article 13 is not binding on the Owner and the Owner may reject the Claim for such failure.

14.2 No later than seven (7) days from receipt of the Claim by the Design Professional, it shall:

.1 Make a written request to the Contractor or Owner for more data to support the Claim;

.2 Attempt to facilitate resolution of the Claim through informal negotiations; or

.3 If the Claim is by the Contractor, make a written recommendation to the Owner, with a copy to the Contractor, that the Owner reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation. If the Claim is by the Owner, make a written recommendation to the Contractor, with a copy to the Owner, that the Contractor reject or approve all or part of the Claim and state the reasons for the Design Professional's recommendation.

14.3 If the Design Professional requests more data from the Contractor or the Owner under subparagraph 14.2.1, the Contractor or Owner shall respond no later than seven (7) days from receipt of such request, and provide additional data, provide a date certain by which additional data will be provided, or state that it will not provide additional data. Upon receipt of data, if any, in accordance with this section, the Design Professional will complete the evaluation of the Claim. Failure to respond at all or failure to provide data by the date specified in the response to the request shall result in the Claim being evaluated based on the information in the Design Professional's possession.

14.4 In evaluating the Claim, the Design Professional may consult with the Contractor, the Owner or other persons with knowledge or expertise that may assist the Design Professional in its evaluation.

14.5 No later than fourteen (14) days after receipt by the Owner of the Design Professional's recommendation regarding the Contractor's Claim, the Owner shall, in writing, notify the Contractor and the Design Professional of its decision regarding the Claim. No later than fourteen (14) days after receipt by the Contractor of the Design Professional's recommendation regarding the Owner's Claim, the Contractor shall, in writing, notify the Owner and the Design Professional of its decision regarding the Claim.

14.6 The Owner's decision regarding the Contractor's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract, and the Contractor's decision regarding the Owner's Claim is binding on the Owner and the Contractor but is subject to mediation in accordance with this Contract.

ARTICLE 15
SUBCONTRACTORS

15.1 A document in the form of Exhibit E shall be completed and submitted upon execution of this Contract and those subcontractors named therein shall match those subcontractors named in the Contractor's bid unless otherwise agreed to in writing by the Owner. Also upon execution of this Contract by the Contractor, the Contractor shall identify to the Owner and the Design Professional, in writing, those parties intended as subcontractors on the Project not otherwise named in Exhibit E. The Owner shall, in writing, state any objections the Owner may have to one or more of such subcontractors. The Contractor shall not enter into a subcontract with an intended subcontractor with reference to whom the Owner objects. All subcontracts shall afford the Contractor rights against the subcontractor which correspond to those rights afforded to the Owner against the Contractor herein, including those rights of Contract Termination as set forth in this Contract. All subcontractors shall, throughout the duration of this Contract, be properly licensed as Idaho Public Works Contractors.

15.2 The Contractor conditionally assigns each of its subcontracts related to the Project to the Owner. All subcontracts between the Contractor and the subcontractors shall obligate the subcontractor to such conditional assignment. Upon a Termination by the Owner for cause under Paragraph 20.1, the Owner may accept such conditional assignment by written notification to the applicable subcontractor and to the Contractor. Such acceptance is subject to the rights of the Surety, if any, relating to the Contract.

ARTICLE 16
CHANGES IN THE WORK

16.1 General

.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article and elsewhere in the Contract Documents; and

.2 Changes in the Work shall be performed under applicable provisions of the Contract Documents and the Contractor shall proceed promptly, unless otherwise provided in the Change Order, Construction Change Directive or order for a minor change in the Work.

16.2 Change Orders

.1 A "Change Order" is a written instrument prepared by the Design Professional and signed by the Owner, Contractor and Design Professional, stating their agreement upon: a change in the work, any adjustment in the Fixed Price Contract Amount and any adjustment in the Contract Time;

.2 Methods used in determining adjustments to the Fixed Price Contract Amount may include those listed in subparagraph 16.3.4;

.3 The amount allowed for overhead and profit on any Change Order is limited to the amounts indicated in subparagraph 16.3.11;

.4 Any Change Order prepared, including those arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the Work, including all direct, indirect and consequential costs associated with such change and any and all adjustments to the Fixed Price Contract Amount and Contract Time. In the event a Change Order increases the Fixed Price Contract Amount, the Contractor shall include the Work covered by such Change Order in the Contractor's Request for Payment as if such Work were originally part of the Project and Contract Documents; and

.5 By the execution of a Change Order, the Contractor agrees and acknowledges that it has had sufficient time and opportunity to examine the change in Work which is the subject of the Change Order and that it has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the Fixed Price Contract Amount or Contract Time by reason of any conditions affecting the change in Work addressed by the Change Order, which could have reasonably been discovered or disclosed by the Contractor's examination.

16.3 Construction Change Directive (CCD)

.1 A "Construction Change Directive" is a written order prepared by the Design Professional and signed by the Owner and Design Professional directing a change in the Work prior to agreement on adjustment, if any, in the Fixed Price Contract Amount or Contract Time or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract, consisting of additions, deletions or other revisions, the Fixed Price Contract Amount and Contract Time being adjusted accordingly;

.2 A Construction Change Directive, within limitations, may also be used to incorporate minor changes in the Work agreed to by the Design Professional's representative, the Owner's Field Representative and the Contractor's superintendent or project manager. The limits of these representatives' authority with regard to Construction Change Directives shall be documented in writing by the Design Professional, Owner and Contractor;

.3 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order;

.4 If the Construction Change Directive provides for an adjustment to the Fixed Price Contract Amount, the adjustment shall be based on one (1) of the following methods:

.1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;

.2 Unit prices stated in the Contract Documents or subsequently agreed upon;

.3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or

.4 As provided in subparagraph 16.3.7;

.5 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Design Professional in writing within forty-eight (48) hours of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Fixed Price Contract Amount or Contract Time;

.6 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Fixed Price Contract Amount and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be incorporated into a future Change Order;

.7 If the Contractor does not respond promptly or disagrees with the method for adjustments in the Fixed Price Contract Amount or Contract Time, the method and the adjustment shall be determined by the Design Professional on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Fixed Price Contract Amount, an allowance for overhead and profit in accordance with subparagraph 16.3.11. In such case of an increase in Fixed Price Contract Amount, and also under subparagraph 16.3.4, the Contractor shall keep and present, in such form as the Design Professional may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this subsection shall be limited to the following:

.1 Costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom and workers' compensation insurance;

.2 Costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;

.3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;

.4 Costs of permit fees and sales, use or similar taxes related to the Work; and

.5 Additional costs of supervision and field office personnel directly attributable to the change;

.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Fixed Price Contract Amount shall be for the actual net cost of the decrease, confirmed by the Design Professional. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change;

.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, amounts not in dispute for such changes in the Work shall be included in the Contractor's Request for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs;

.10 When the Owner and Contractor agree with the determination by the Design Professional concerning the adjustments in the Fixed Price Contract Amount and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order; and

.11 For purposes of subparagraphs 16.2.3 and 16.3.7, the allowance for combined overhead, profit, bonds and insurance shall be limited as follows, unless otherwise provided in the Contract Documents:

.1 For total changes of $10,000 or less in direct cost, the amount of overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed twenty percent (20%) of direct costs;

.2 For total changes exceeding $10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier combined shall not exceed fifteen percent (15%) of direct costs; or

.3 The Contractor will determine the apportionment between the Contractor and its subcontractors of allowable amounts of overhead, profit, bonds and insurance.

16.4 The Design Professional will have authority to order minor changes in the Work not involving adjustment in the Fixed Price Contract Amount or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

ARTICLE 17
DISCOVERING AND CORRECTING DEFECTIVE OR INCOMPLETE WORK

17.1 If the Contractor covers, conceals or obscures its Work in violation of this Contract or in violation of a directive or request from the Owner or the Design Professional, such Work shall be uncovered and displayed for the Owner's or Design Professional's inspection upon request and shall be reworked at no cost in time or money to the Owner.

17.2 If any of the Work is covered, concealed or obscured in a manner not addressed by Paragraph 17.1, it shall, if directed by the Owner or the Design Professional, be uncovered and displayed for the Owner's or Design Professional's inspection. If the uncovered Work conforms strictly with this Contract, the costs incurred by the Contractor to uncover and subsequently replace such Work shall be borne by the Owner. Otherwise, such costs shall be borne by the Contractor.

17.3 The Contractor shall, at no cost in time or money to the Owner, promptly correct Work (fabricated, installed or completed) rejected by the Owner or by the Design Professional as defective or that fails to conform to this Contract whether discovered before or after Substantial Completion. Additionally, the Contractor shall reimburse the Owner for all testing, inspections and other expenses incurred as a result thereof.

17.4 In addition to any other warranty obligations in this Contract, the Contractor shall be specifically obligated to correct, upon written direction from the Owner, any and all defective or nonconforming Work for a period of twelve (12) months following Substantial Completion.

17.5 The Owner may, but shall in no event be required to, choose to accept defective or nonconforming Work. In such event, the Fixed Price Contract Amount shall be reduced by the lesser of: (i) the reasonable costs of removing and correcting the defective or nonconforming Work; or (ii) the difference between the fair market value of the Project as constructed and the fair market value of the Project had it not been constructed in such a manner as to include defective or nonconforming Work. If the remaining portion of the unpaid Fixed Price Contract Amount, if any, is insufficient to compensate the Owner for the acceptance of defective or nonconforming Work, the Contractor shall, upon written demand from the Owner, pay the Owner such remaining compensation for accepting defective or nonconforming work.

ARTICLE 18
TERMINATION BY THE CONTRACTOR

18.1 The Contractor may terminate the Contract if the Work is stopped for a period of ninety (90) consecutive days through no act or fault of the Contractor or a subcontractor, sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor, for any of the following reasons:

.1 Issuance of an order by a court or by another public authority having jurisdiction and authority which requires all Work to be stopped; or

.2 An act of government, such as a declaration of national emergency, which requires all Work to be stopped.

18.2 In such event, the Contractor shall be entitled to recover from the Owner as though the Owner had terminated the Contractor's performance under this Contract pursuant to Paragraph 20.3.

ARTICLE 19
OWNER'S RIGHT TO SUSPEND CONTRACTOR'S PERFORMANCE

19.1 The Owner may, at any time and without cause, order the Contractor, in writing, to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine. If the Owner directs any such suspension, the Contractor must immediately comply with same.

19.2 In the event the Owner directs a suspension of performance under this Article, and such suspension is through no fault of the Contractor, the Fixed Price Contract Amount and Contract Time shall be adjusted for increases in the cost and time caused by such suspension, delay or interruption to cover the Contractor's reasonable costs, actually incurred and paid, of:

.1 Demobilization and remobilization, including such costs paid to subcontractors;

.2 Preserving and protecting Work in place;

.3 Storage of materials or equipment purchased for the Project, including insurance thereon; and

.4 Performing in a later, or during a longer, time frame than that provided by this Contract.

19.3 The adjustment of the Fixed Price Contract Amount shall include an amount for a reasonable profit. The adjustment of the Fixed Price Contract Amount shall not include any amount not otherwise allowed under this Contract, including any limitations applicable to Claims. The Contractor shall provide supporting documentation related to any increase upon request of the Owner. No adjustment shall be made to the extent:

.1 That performance is, was or would have been so suspended, delayed or interrupted by another cause for which the Contractor is responsible; or

.2 That an equitable adjustment is made or denied under another provision of the Contract.

ARTICLE 20
TERMINATION BY THE OWNER

The Owner may terminate this Contract in accordance with the following terms and conditions:

20.1 If the Contractor does not perform the Work, or any part thereof, in accordance with the Contract Documents, or in a timely manner; does not supply adequate labor, supervisory personnel, or proper equipment or materials; fails to pay subcontractors; fails to timely discharge its obligations for labor, equipment, and materials; proceeds to disobey applicable law; or otherwise breaches this Contract, then the Owner, in addition to any other rights it may have against the Contractor, may terminate the Contract and assume control of the Project site and of all materials and equipment at the site and may complete the Work. In such case, the Contractor shall not be paid further until the Work is complete. Upon such Termination, the Owner may, subject to any superior rights of the Surety, take possession of the site and of all materials, equipment, tools and construction equipment and machinery thereon owned by the Contractor; accept assignment of those subcontracts conditionally assigned under Paragraph 15.2; and finish the Work by whatever reasonable method the Owner may deem expedient.

20.2 When the Owner terminates the Contract for cause as provided in Paragraph 20.1, the Contractor shall not be entitled to receive further payment until the Work is finished and shall only be entitled to payment for Work

satisfactorily performed by the Contractor in accordance with the Contract Documents. If the costs of finishing the Work, including compensation for the Design Professional's services and expenses made necessary thereby, exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. In the event the employment of the Contractor is terminated by the Owner for cause pursuant to Paragraph 20.1 and it is subsequently determined by a court of competent jurisdiction that such termination was without cause, such termination shall thereupon be deemed a Termination under Paragraph 20.3 and the provisions of Paragraph 20.3 shall apply.

20.3 The Owner may, at any time and for any reason, terminate this Contract. The Owner shall give no less than seven (7) days' written notice of such Termination to the Contractor specifying when termination becomes effective. The Contractor shall incur no further obligations in connection with the Work and the Contractor shall stop Work when such Termination becomes effective. The Contractor shall also terminate outstanding orders and subcontracts. The Contractor shall settle the liabilities and claims arising out of the termination of subcontracts and orders. The Owner may direct the Contractor to assign the Contractor's right, title and interest under termination orders or subcontracts to the Owner or its designee. The Contractor shall transfer title and deliver to the Owner such completed or partially completed Work and materials, equipment, parts, fixtures, information and Contract rights as the Contractor has. When terminated pursuant to this section, the following shall apply:

.1 The Contractor shall submit a Termination Claim to the Owner and the Design Professional specifying the amounts claimed due because of the Termination, together with costs, pricing or other supporting data required by the Owner or the Design Professional. Failure by the Contractor to file a Termination Claim within ninety (90) days from the effective date of termination shall be deemed a complete waiver by the Contractor of any right to any payment;

.2 Before or after receipt of the Termination Claim, the Owner and the Contractor may agree to the compensation, if any, due to the Contractor hereunder; and

.3 If the Contractor has filed the Termination Claim but the Contractor and the Owner do not agree on an amount due to the Contractor, the Owner shall pay the Contractor the following amounts:

.1 Unpaid Contract prices for labor, materials, equipment and other services provided or perfected prior to termination and acceptable to or accepted by the Owner;

.2 Reasonable costs incurred in preparing to perform the terminated portion of the Work, and in terminating the Contractor's performance, plus a fair and reasonable allowance for direct job-site overhead and profit related to such preparation (such profit shall not include anticipated profit or consequential damages); provided, however, that if it appears that the Contractor would have not profited or would have sustained a loss if the entire Contract would have been completed, no profit shall be allowed or included and the amount of compensation shall be reduced to reflect the anticipated loss, if any; and

.3 Reasonable costs of settling and paying claims arising out of the Termination of subcontracts or orders pursuant to this Paragraph 20.3.

20.4 Costs described in subparagraphs 20.3.3.2 or 20.3.3.3 above shall not include amounts paid in accordance with other provisions hereof. In no event shall the total sum to be paid the Contractor under subparagraph 20.3.3 exceed the total Fixed Price Contract Amount, as properly adjusted, reduced by the amount of payments previously or otherwise made and by any other deductions permitted under this Contract and shall in no event include duplication of payment.

ARTICLE 21
CONTRACTOR'S LIABILITY INSURANCE

21.1 The Contractor, subcontractor and sub-subcontractor shall purchase and maintain in full force and effect from a company or companies lawfully authorized to do business in the State of Idaho such insurance as will protect the Contractor, subcontractor and sub-subcontractor from claims set forth below which may arise out of or result from the Contractor's or subcontractor's operations under the Contract and for which the Contractor may be legally liable,

whether such operations be by the Contractor or by a subcontractor or by anyone directly or indirectly employed by any of them or by anyone for whose acts any of them may be liable:

.1 Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts which are applicable to the work to be performed;

.2 Claims for damages because of bodily injury, occupational sickness or disease or death of the Contractor's employees;

.3 Claims for damages because of bodily injury, sickness or disease or death of any person other than the Contractor's employees;

.4 Claims for damages insured by usual personal injury liability coverage which are sustained: (i) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor; or (ii) by another person;

.5 Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting there from;

.6 Claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of a motor vehicle;

.7 Claims for bodily injury or property damage arising out of completed operations; and

.8 Claims involving contractual liability insurance applicable to the Contractor's obligations under Article 11.

21.2 The insurance required by Paragraph 21.1 above shall be written for not less than limits of liability specified in this Contract or as required by law, whichever is greater. Coverages, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. In addition, for any insurance required that is obtained on a claims-made basis, “tail coverage” is required at the completion of the Work for twenty-four (24) months. Continuous claims-made coverage will be acceptable in lieu of “tail coverage” provided the retroactive date is on or before the effective date of this Contract or twenty-four (24) months “prior acts” coverage is provided.

.1 The insurance required by Paragraph 21.1 above shall be written for not less than the following limits:

.1 Workers' Compensation and Employer’s Liability

(a) State Workers Compensation: Statutory

(b) Employer's Liability: $100,000 per Accident

$500,000 Disease, Policy Limit

$100,000 Disease, Each Employee

.2 Comprehensive Commercial General Liability and Umbrella Liability Insurance. Contractor shall maintain Commercial General Liability (“CGL”) and, if necessary, commercial umbrella insurance with a limit of not less than $1,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project location;

CGL insurance shall be written on Insurance Services Office (“ISO”) occurrence form CG 00 01 12 04 (or a substitute form providing equivalent coverage) and shall cover liability arising from premises, operation, independent contractors, products-completed operations, personal (including employee acts) and advertising injury and liability assumed under an insured contract (including the tort liability of another assumed in a business contract). As applicable, coverage must also include a broad form CGL endorsement if the substitute insurance is a 1973 edition CGL or its equivalent;

Owner shall be included as an additional insured under the CGL, using ISO additional insured endorsement CG 20 10 and CG 20 37 or their equivalent, which endorsement shall include coverage for the Owner with respect to liability arising out of the Work, including completed operations of Contractor, and which coverage shall be maintained in effect for the benefit of Owner for a period of two (2) years following the completion of the work specified in this Contract. Additional insured coverage as required in this subparagraph shall apply as primary insurance with respect to any other insurance or self-insurance programs afforded to the Owner;

(a) For the hazards of explosion, collapse, and damage to underground property, commonly referred to as XCU, coverage shall be required if the exposures exist; and

This coverage may be provided by the subcontractor if the Owner and prime Contractor are named as additional insureds;

.3 Business Auto and Umbrella Liability Insurance: Contractor shall maintain business, auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than $1,000,000 each accident;

Such insurance shall cover liability arising out of any auto (including owned, hired, and non-owned autos);

Business auto coverage shall be written on ISO form CA 00 01, CA 00 05, CA 00 12, CA 00 20 or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide contractual liability coverage equivalent to that provided in the 1990 and later editions of CA 00 01;

If hazardous waste will be hauled, Contractor shall obtain pollution liability coverage equivalent to that provided under the ISO pollution liability-broadened coverage for covered autos endorsement (CA 99 48) and the Motor Carrier Act endorsement (MCS 90) shall be attached;

.4 If the General Liability coverages are provided by Commercial Liability policies the:

.1 General Aggregate shall be not less than $2,000,000; and

.2 Fire legal liability shall be provided in an amount not less than $100,000 per occurrence; and

.5 Umbrella Excess Liability. An umbrella policy may be used in combination with other policies to provide the required coverage.

21.3 The Owner shall be named as additional insured or loss payee, as applicable, on the insurance required in subparagraphs 21.2.1.2, 21.2.1.3 and 21.2.1.5 above, and the insurance shall contain the severability of interest clause as follows:

"The insurance afforded herein applies separately to each insured against whom claim is made or suit is brought, except with respect to the limits of the company's 'liability.' "

21.4 The Contractor may include all subcontractors as insureds under the Contractor's policies in lieu of separate policies by each subcontractor. The Contractor must furnish the State of Idaho, Division of Public Works, with the required endorsements or certificates of insurance from each subcontractor which names the subcontractor, its officials, employees and volunteers as insureds.

21.5 Certificates of Insurance for Workers' Compensation shall be on the standard form. Certificates of Insurance for Commercial or Comprehensive General Liability shall be the most current ACORD Form 25 or 28, must be acceptable to the Owner and shall be filed with the Owner prior to commencement of the Work. The Owner may require proof of coverage by an endorsement. If any of the foregoing insurance coverages are required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage shall be submitted with the final Contractor's Request for Payment as required by Article 7. Information

concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

ARTICLE 22
OWNER'S LIABILITY INSURANCE

The Owner, at its option, may purchase or maintain insurance for protection against claims which may arise from operations under the Contract.

ARTICLE 23
PROPERTY INSURANCE

23.1 Unless otherwise provided, the Owner shall purchase or maintain, from a company or companies lawfully authorized to do business in the State of Idaho, property insurance written on a builders risk "all-risk" or equivalent policy form in an amount not less than the initial Fixed Price Contract Amount. Such property insurance shall be maintained until final payment to the Contractor has been made. This insurance shall include interests of the Owner, the Contractor, subcontractors and sub-subcontractors.

23.2 Property insurance shall be on an "all-risk" or equivalent policy form and shall include, but not necessarily be limited to insurance against the perils of fire (with extended coverage) and mischief, collapse, earthquake, flood, windstorm, temporary buildings and debris removal, including demolition occasioned by enforcement of any applicable legal requirements, and shall cover necessary and reasonable expenses for the Design Professional's expenses required as a result of such insured loss.

23.3 If the property insurance requires deductibles, the Owner shall pay costs of such deductibles.

23.4 Boiler and Machinery Insurance. The Owner will purchase and maintain boiler and machinery insurance, which shall specifically cover such insured objects during installation and testing.

23.5 Loss of Use Insurance. The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of the Owner's property due to fire or other hazards, however caused.

23.6 Waivers of Subrogation. The Owner and Contractor waive all rights against: (i) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other; and (ii) the Design Professional, Design Professional's consultants, separate contractors, if any, and any of their subcontractors, sub-subcontractors, agents and employees, for damages to the Work caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to this Article or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner. The Owner or Contractor, as appropriate, shall require of the Design Professional, Design Professional's consultants, separate contractors, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged. The Owner does not waive its subrogation rights to the extent of its property insurance on structures or portions of structures that do not comprise the Work.

23.7 The Contractor authorizes the Owner to negotiate and agree on the value and extent of, and to collect the proceeds payable with respect to, any loss under a policy of insurance carried by the Owner pursuant to any of the provisions of this Article. The Owner shall have full right and authority to compromise any claim, or to enforce any claim by legal action or otherwise, or to release and discharge any insurer, by and on behalf of the Owner and Contractor. The Owner shall provide written notice to Contractor of: (i) its having reached any such settlement or adjustment with an insurer; and (ii) the receipt of any funds pursuant to this Article. Any objection by the Contractor to a settlement or adjustment made under this Article must be made in writing to the Owner within five (5) business

days of the notice from the Owner. The Owner and the Contractor agree to attempt to resolve the dispute by mutual agreement.

23.8 A loss under the Owner's property insurance shall be adjusted by the Owner and made payable to the Owner for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause.

23.9 The Owner shall deposit proceeds so received, in a manner in which such proceeds can be separately accounted for, which proceeds the Owner shall distribute in accordance with such agreement as the parties in interest may reach. If after such loss no other special agreement is made and unless the Owner terminates the Contract pursuant to Article 20, replacement of damaged property shall be performed by the Contractor after notification of a Change in the Work in accordance with Article 16.

23.10 The Contractor shall pay subcontractors their shares of the insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require subcontractors to acknowledge the Owner's authority under this Article 23 and make payments to their sub-subcontractors in similar manner.

23.11 Nothing contained in this Article 23 shall preclude the Contractor from obtaining, solely at its own expense, additional insurance not otherwise required.

ARTICLE 24
PERFORMANCE AND PAYMENT BONDS

24.1 The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount not less than the Fixed Price Contract Amount and shall include a power of attorney attached to each bond. The signature of both the Contractor (principal) and the Surety are required. If the Surety is incorporated, both bonds must have the corporate seal. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Fixed Price Contract Amount is adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be AIA Document A312, or a standard surety form certified approved to be the same as the AIA Document A312, and shall be executed by a Surety, or Sureties, reasonably acceptable to the Owner and authorized to do business in the State of Idaho.

24.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

24.3 It is the Contractor's obligation to notify the Surety in the event of changes in the Contract Documents, which in the absence of notification might serve to discharge the Surety's obligations, duties or liability under bonds or the Contract.

ARTICLE 25
PROJECT RECORDS

25.1 All documents relating in any manner whatsoever to the Project, or any designated portion thereof, which are in the possession of the Contractor or any subcontractor of the Contractor, shall be made available to the Owner or the Design Professional for inspection and copying upon written request. Furthermore, said documents shall be made available, upon request by the Owner, to any state, federal or other regulatory authority and any such authority may review, inspect and copy such records. Said records include all drawings, plans, specifications, submittals, correspondence, minutes, memoranda, tape recordings, videos or other writings or things which document the Project, its design and its construction. Said records expressly include those documents reflecting the cost of construction to the Contractor. The Contractor shall maintain and protect these documents for no less than four (4) years after final completion or termination of the Contract or for any longer period of time as may be required by law or good construction practice.

ARTICLE 26
MISCELLANEOUS PROVISIONS

26.1 The law is hereby agreed to be the law of the State of Idaho. The parties further agree that venue for any proceeding related to this Contract shall be in Boise, Ada County, Idaho, unless otherwise mutually agreed by the parties.

26.2 Pursuant to Section 54-1904A, Idaho Code, within thirty (30) days after award of this Contract, the Contractor shall file with the Idaho State Tax Commission, with a copy to the Owner, a signed statement showing the date of Contract award, the names and addresses of the home offices of contracting parties, including all subcontractors, the state of incorporation, the Project Number and a general description of the type and location of the Work, the amount of the prime contracts and all subcontracts and all other relevant information which may be required on forms which may be prescribed by the Idaho State Tax Commission.

26.3 The Contractor, in consideration of securing the business of erecting or constructing public works in the State of Idaho, recognizing that the business in which it is engaged is of a transitory character, and that in the pursuit thereof, its property used therein may be without the state when taxes, excises or license fees to which it is liable become payable, agrees:

.1 To pay promptly when due all taxes (other than on real property), excises and license fees due to the State of Idaho, its sub-divisions, and municipal and quasi-municipal corporations therein, accrued or accruing during the term of this Contract, whether or not the same shall be payable at the end of such term;

.2 That if the said taxes, excises and license fees are not payable at the end of said term, but liability for the payment thereof exists even though the same constitute liens upon its property, to secure the same to the satisfaction of the respective officers charged with the collection thereof; and

.3 That, in the event of its default in the payment or securing of such taxes, excises and license fees, to consent that the department, officer, board or taxing unit entering into this Contract may withhold from any payment due it hereunder the estimated amount of such accrued and accruing taxes, excises and license fees for the benefit of all taxing units to which said Contractor is liable.

26.4 Before entering into a Contract, the Contractor shall be authorized to do business in the State of Idaho and shall submit a properly executed Contractor's Affidavit Concerning Taxes (Exhibit D).

26.5 Pursuant to Section 44-1002, Idaho Code, it is provided that each Contractor "must employ ninety-five percent (95%) bona fide Idaho residents as employees on any job under any such contract except where under such contracts fifty (50) or less persons are employed the contractor may employ ten percent (10%) nonresidents, provided, however, in all cases employers must give preference to the employment of bona fide residents in the performance of said work, and no contract shall be let to any person, firm, association, or corporation refusing to execute an agreement with the above mentioned provisions in it; provided, that, in contracts involving the expenditure of federal aid funds this act shall not be enforced in such a manner as to conflict with or be contrary to the federal statutes prescribing a labor preference to honorably discharged soldiers, sailors, and marines, prohibiting as unlawful any other preference or discrimination among citizens of the United States." (Ref. Section 44-1001, Idaho Code)

26.6 The Contractor shall maintain, in compliance with Title 72, Chapter 17, Idaho Code, a drug-free workplace program throughout the duration of this Contract and shall only subcontract work to subcontractors who have programs that comply with Title 72, Chapter 17, Idaho Code.

26.7 As between the Owner and Contractor as to acts or failures to act, any applicable statute of limitations shall commence to run and any legal cause of action shall be deemed to have accrued in any and all events in accordance with Idaho law.

26.8 The Contractor and its subcontractors and sub-subcontractors shall comply with all applicable Idaho statutes with specific reference to Idaho Public Works Contractors' licensing laws in the State of Idaho, Title 54, Chapter 19, Idaho Code, as amended.

26.9 The Contractor shall not knowingly hire or engage any illegal aliens or persons not authorized to work in the United States and take steps to verify that it does not hire or engage any illegal aliens or persons not authorized to

work in the United States. Any misrepresentation in this regard or any employment of persons not authorized to work in the United States constitutes a material breach and shall be cause for the imposition of monetary penalties not to exceed five percent (5%) of the Fixed Price Contract Amount per violation and/or Termination of this Contract. The Contractor also acknowledges that, if it is a natural person, it is subject to Title 67, Chapter 79, Idaho Code regarding verification of lawful presence in the United States.

ARTICLE 27
EQUAL OPPORTUNITY

The Contractor shall maintain policies of employment as follows:

27.1 The Contractor and the Contractor's subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex, age or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, color, sex, age or national origin. Such action shall include the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

27.2 The Contractor and the Contractor's subcontractors shall, in all solicitation or advertisements for employees placed by them or on their behalf; state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex, age or national origin.

ARTICLE 28
SUCCESSORS AND ASSIGNS

28.1 Each party binds itself, its successors, assigns, executors, administrators or other representatives to the other party hereto and to successors, assigns, executors, administrators or other representatives of such other party in connection with all terms and conditions of this Contract. The Contractor shall not assign this Contract or any part of it or right or obligation pursuant to it without prior written consent of the Owner. If Contractor attempts to make assignment without consent of Owner, Contractor shall remain legally responsible for all obligations under this Contract.

ARTICLE 29
SEVERABILITY

29.1 In the event any provision or section of this Contract conflicts with applicable law or is otherwise held to be unenforceable, the remaining provisions shall nevertheless be enforceable and shall be carried into effect.

ARTICLE 30
MEDIATION

30.1 Contractor Claims for additional cost or time are subject to Article 13, shall be reviewed as provided in accordance with that Article and, as a condition precedent to litigation, are subject to dispute resolution attempts and mediation in accordance with this Article. All other issues and disputes arising from this contract are also subject to dispute resolution attempts & mediation in accordance with this Article, as a condition precedent to litigation.

30.2 The parties agree that resolution of any dispute or disagreement without formal legal proceedings is to their mutual benefit and to the benefit of the Project.

30.3 The parties agree to make every reasonable attempt to resolve any issues or disputes informally. The parties further agree that prior to the institution by either of legal or equitable proceedings of any kind, and as a condition

precedent thereto, any dispute between the Contractor and the Owner related to the Contract, including a dispute over the Owner's decision regarding a Claim, shall be subject to mediation as follows:

.1 If the issue to be mediated involves only a dispute regarding the Contract Time, no request to mediate shall be made unless liquidated damages have been assessed by the Owner. If the issue to be mediated involves a Claim or other financial dispute, no request to mediate shall be made unless the amount is $50,000 or more or until there are cumulative Claims or disputes amounting to $50,000 or more; provided, however, that a mediation request can be made as to any Claim or financial matter at any time after Substantial Completion;

.2 The party seeking mediation shall notify the other party in writing of its mediation request. In such written request, the requesting party must clearly describe the issues it believes are subject to mediation;

.3 Within fifteen (15) days of receipt of the mediation request, the non-requesting party shall respond in writing to the request;

.4 Unless the Owner and the Contractor agree to other rules for mediation, mediation shall be in accordance with the Construction Industry Rules of Arbitration and Mediation Procedures in effect at the time of the mediation;

.5 The parties shall share the mediator's fee and any filing fees equally; provided, however, that if a party makes a written request to the mediator without satisfying the requirements of this section and by doing so incurs any costs or fees, that party shall be solely responsible for the costs or fees;

.6 Unless otherwise mutually agreed to by the parties, the mediation shall be in Boise, Ada County, Idaho;

.7 The parties shall cooperate in arranging the other details of mediation, such as selection of the mediator, mediation dates and times;

.8 The parties agree that all parties necessary to resolve the matter shall be parties to the same mediation proceeding; provided, however, that no subcontractor or sub-subcontractor shall attend the mediation absent advance notice and consent from the Owner;

.9 Agreements reached in mediation shall be enforceable as settlement agreements in any court having proper jurisdiction; and

.10 Unless otherwise agreed in writing, the Contractor shall continue the Work and maintain the approved schedules during any mediation proceedings. If the Contractor continues to perform, the Owner shall continue to make payments in accordance with the Contract Documents.

30.4 If mediation fails to resolve the dispute, either party may file an action in the courts of Idaho in accordance with the venue provision contained in this Contract.

ARTICLE 31
WAIVER OF CONSEQUENTIAL DAMAGES

31.1 The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

.1 Damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation and for loss of management or employee productivity or of the services of such persons.

.2 Damages incurred by the Contractor for principal office expenses, including the compensation of personnel stationed there; for losses of income, financing, business and reputation; loss of management or employee productivity or of the services of such persons; and for loss of profit except profit arising directly from the Work.

31.2 This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Articles 18 and 20. Nothing contained in this paragraph shall be deemed to preclude an award of the assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

IN WITNESS WHEREOF, the parties have executed this Contract on the dates set forth below.

OWNER

State of Idaho
Division of Public Works

By: _____

_____
Date Executed

Jan P. Frew, Administrator

CONTRACTOR

_____ *SEAL*
(Contractor's Name- Typed)

By: _____

_____
Date Executed

Signature

_____
Printed Name

_____
Title

EXHIBIT A

OWNER'S PROJECT IDENTIFICATION INFORMATION:

DPW Project No. 15251
Project Title: Entry Foyer & Main Stair Renovation
Project Location: University of Idaho, Administration Building, Moscow, ID

General Project Description: the restoration of the three story foyer and north stair of the Administration Building on the University of Idaho Campus. Specifically, M/E/P/FP systems will be upgraded, historic finishes restored, and life safety issues will be address in this project.

ADDENDA: Addenda applicable to the Contract and made a part of are as follows:

Addendum No. _ Dated _____
Addendum No. _Dated _____
Addendum No. _Dated _____

FIXED PRICE CONTRACT AMOUNT AND ACCEPTED ALTERNATES:

Base Bid Amount:			$.00
Alternate No. _1_	(Fire sprinkler upgrades)	add	$.00
Alternate No. _2_	(Third Floor repairs and restoration)	add	$.00
Alternate No. _3_	(Plaster restoration at third floor)	add	$.00
Alternate No. _4_	(Repair and restoration of exterior wood windows and Foyer 101 Main Entry Door)	add	$.00
Total Fixed Price Contract Amount			
(_____) Dollars			$.00

Contractor's Requests for Payment are to be submitted for Work accomplished through the _____ day of each month as described in Paragraph 7.3.

TIME FOR PERFORMANCE AND LIQUIDATED DAMAGES:

A. The Bidder hereby agrees to commence Work under this Contract on a date to be specified in the written "Notice to Proceed" of the Owner and to substantially complete the Project.

B. Bidder further agrees to pay as liquidated damages, the sum of five hundred Dollars ($500) for each consecutive calendar day after the established substantial completion date or adjusted date as established by change order.

DRAWINGS AND SPECIFICATIONS

The Owner shall furnish the Contractor 4 sets of Drawings and Project Manuals.

EXHIBIT B

ADDRESSES and AUTHORIZED REPRESENTATIVES: The names, addresses and authorized representatives of the Owner, the Contractor and the Design Professional are:

OWNER:
State of Idaho
Division of Public Works
502 N. 4th Street
P.O. Box 83720
Boise, ID 83720-0072
Jan P. Frew, Administrator

Project Manager:
Elaine Hill
Telephone: (208) 332-1925
E-mail: ehill@adm.state.id.us
Fax: (208) 334-4031
May sign for Owner: Yes [X] No [ ]
Change Orders: up to $20,000

Field Representative:
Mark Schlickenmeyer
Telephone: (208) 885-4020
E-mail: Mark.Schlickenmeyer@adm.idaho.gov
Fax: (208) 885-4022
May sign for Owner: Yes [X] No [ ]
Change Orders: up to $10,000

CONTRACTOR:
_____ (company name)
_____ (address)
_____ (city, state, zip)
_____ (telephone and FAX)
Public Works Contractors License No. _____

Officer:
_____ (name and title)
_____ (telephone)
_____ (E-mail)

Contractor's Project Manager:
_____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [ ] No [ ]
Change Orders: up to: $____.00
Construction Change Authorizations: up to: $_____.00
Contractor's Request for Payment

Contractor's Superintendent:
_____ (name)
_____ (telephone and FAX)
_____ (E-mail)
May sign for Contractor: Yes [ ] No [ ]
Construction Change Authorizations: up to $_____.00

DESIGN PROFESSIONAL:

CSHQA *(firm name)*
200 Broad Street *(address)*
Boise, ID 83702 *(city, state and zip)*
208-343-4635 *(telephone)*
208-343-1858 *(FAX)*

Professional's Project Manager:

Danielle Weaver *(name)*
Professional License No. AR-984489
208-429-4015 *(telephone)*
208-343-1858 *(FAX)*
Danielle.weaver@cshqa.com *(E-mail)*

Professional's Field Representative:

Chick Mabbutt (Associated Architects) (*name)*
208-882-5051 *(telephone)*
assocarch@moscow.com *(E-mail)*
May sign for Architect Yes [**X**] No [ ]

EXHIBIT C

LIST OF DRAWINGS:

G0.1 Title Sheet
G0.2 Code Plan

Architectural

A1.1 Demolition Plans
A2.1 Floor Plans
A3.1 Enlarged Floor Plans
A3.2 Enlarged Floor Plan
A4.1 Building Sections
A5.1 Interior Elevations
A5.2 Interior Elevations
A6.1 Reflected Ceiling plan
A7.1 Door and Finish Schedules
A8.1 Exterior Details
A9.1 Interior Details
A9.2 Photos

Mechanical

M101 Floor Plans – Mechanical

Lighting

L101 Overall building Floor Plans – Lighting – Demolition
L102 Overall building Floor Plan – Lighting – Demolition
L201 First Floor Enlarged Plan – Lighting
L202 Second Floor Enlarged Plan – Lighting
L203 Third Floor Enlarged Plan – Lighting

Electrical

E001 Legends & Abbreviations – Electrical
E002 Panel Schedules – Electrical
E101 Overall Building Floor Plans – Electrical Demolition
E102 Overall Building Floor Plans – Electrical Demolition
E200 Basement Floor Enlarged Plan – Electrical
E201 First Floor Enlarged Plan – Electrical
E202 Second Floor Enlarged Plan – Electrical
E203 Third Floor Enlarged Plan – Electrical
E401 Details – Electrical

Fire Protection

FP101 Overall Building Floor Plans - Fire Protection - Demolition
FP102 Overall Building Floor Plans - Fire Protection - Demolition
FP201 First Floor Enlarged Plan - Fire Protection
FP202 First Floor South Corridor - Fire Protection
FP203 Second Floor Enlarged Plan - Fire Protection
FP204 Second Floor South Corridor - Fire Protection
FP205 Third Floor Enlarged Plan - Fire Protection

Building Systems

T101 Overall Building Floor Plan – Systems Demolition
T102 Overall Building Floor Plan – Systems Demolition
T200 Basement Floor Enlarged Plan – Systems
T201 First Floor Enlarged Plan – Systems
T202 Second Floor Enlarged Plan – Systems
T203 Third Floor Enlarged Plan - Systems

LIST OF SPECIFICATIONS:

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

000107 - Seals Page
000110 - Table of Contents
000115 - List of Drawing Sheets
001113 - Advertisement for Bids
002113 - Instructions to Bidders
004100 - Bid Form
004323 - Alternates Form
007200 - General Conditions
007300 - Supplementary Conditions

DIVISION 01 – GENERAL REQUIREMENTS

011000 - Summary
012000 - Price and Payment Procedures
012300 - Alternates
013000 - Administrative Requirements
013216 - Construction Progress Schedule
014000 - Quality Requirements
014216 - Definitions
014219 - Reference Standards
015000 - Temporary Facilities and Controls
016000 - Product Requirements
017000 - Execution and Closeout Requirements
017800 - Closeout Submittals

DIVISION 02 - EXISTING CONDITIONS

024100 - Demolition

DIVISION 03 – CONCRETE

030100 - Concrete Restoration

DIVISION 04 – MASONRY

040100 – Stone Restoration
041000 – Mortar for Exterior Stone Repairs
044600 – Exterior Stone Repair and Replacement

DIVISION 05 – METALS

050100 – Cast Iron Restoration
057200 – Ornamental Handrails and Railings
057310 – SRS Standoff Glass Railing System Through Glass Point Supported Tempered Glass Guard Assemblies

DIVISION 06 – WOOD, PLASTICS, AND COMPOSITES

062000 – Finish Carpentry
064001 - Architectural Woodwork Restoration

DIVISION 07 – THERMAL AND MOISTURE PROTECTION

079200 - Joint Sealants

DIVISION 08 – OPENINGS

086100 - Wood Window Restoration

DIVISION 09 – FINISHES

092000 - Gypsum Plaster Restoration
092216 - Non-Structural Metal Framing
093100 - Mosaic Tile Restoration
096340 - Stone Flooring Restoration
096430 - Wood Flooring Restoration
096600 - Terrazzo Flooring Restoration
099100 - Paint Removal from Sandstone
099123 - Interior Painting

DIVISION 21 – FIRE SUPPRESSION
211313 - Fire Protection

DIVISION 26 – ELECTRICAL
260101 - Basic Electrical Requirements
260102 - Project Finalization
260160 - Electrical Demolition for Remodeling
260519 - Building Wire and Cable
260520 - Equipment Wiring
260526 - Grounding and Bonding

260530 - Conduit
260531 - Surface Raceways
260532 - Boxes
260553 - Electrical Identification
262726 - Wiring Devices
262727 - Supporting Devices
265000 - Lighting

EXHIBIT D

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF _____)

COUNTY OF _____)

Pursuant to the Title 63, Chapter 15, Idaho Code I, the undersigned, being duly sworn, depose and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a Contract for construction of any public works in the State of Idaho.

SEAL

_____
Name of Contractor

_____
Address

_____
City and State

By: _____
(Signature)

Subscribed and sworn to before me this _____ day of _____, _____.

Commission expires:

_____
NOTARY PUBLIC, residing at

_____

_____

EXHIBIT E

NAMED SUBCONTRACTORS:

Pursuant to Section 67-2310, Idaho Code, commonly known as the naming law, the names and addresses of the entities who will perform the plumbing, heating and air conditioning and electrical work were named in the bid and are as follows:

****INCLUDE SUBCONTRACTORS ONLY AS APPLICABLE**

Plumbing (PWCL Category 15400)

(Name) _____
(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Plumbing Contractors License No. _____

Heating Ventilating & Air Conditioning (PWCL Category 15700-HVAC)

(Name)_____
(Address)_____

Idaho Public Works Contractors License No._____

Idaho HVAC Contractors License No. _____

Electrical (PWCL Category 1600)

(Name) _____
(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

EXHIBIT F

NOTICE TO PROCEED

TO CONTRACTOR: DPW NUMBER:

CONTRACT DATE: ARCHITECT:

CONTRACT AMOUNT: $

DATE OF ISSUANCE: OWNER: State of Idaho

You are hereby notified to commence work on the above referenced contract on/or before and are to substantially complete the work within consecutive calendar days thereafter; therefore your contract completion date is .

The contract provides for the sum of **$** as liquidated damages for each consecutive calendar day after the above established substantial completion date that the work remains incomplete. Completion date will be established by "Certificate of Substantial Completion."

You are reminded that any changes to the original contract document regarding either cost or completion date must be effected by a change order approved by this department.

Your payment estimates must be submitted on Division of Public Works forms included herein. We will be most happy to assist you in preparing the payment estimate forms.

has been appointed Field Representative for this project. Please contact him at **332-** prior to beginning work. A pre-construction meeting will be held **,** at , at **(location)**

Sincerely,

JAN P. FREW
ADMINISTRATOR

JP:mb

DISTRIBUTION: Tax Commission
Division of Building Safety
Risk Management (w/ Builder's Risk Application, if applicable)
(Project Manager)
Fiscal Office TAX ID xx-xxxxxxx

EXHIBIT G

REQUEST FOR TAX RELEASE

Date: _____

RE: DPW Project Number: _____

Project Name: _____

State Agency: _____

Project Location: _____

Contractor Requesting Release – Name: _____

Address: _____

_____

Contact Name: _____

Telephone Number: _____

Federal Employer Identification No.: _____

Project Information:

Project is Complete: _____

Project is Substantially Complete: _____

Project Start Date: _____

Project Complete Date: _____

Final Contract Amount (including change orders): _____

Did any public works or other governmental agency supply materials, which were installed by this Contractor or his subcontractors? Yes _____

No _____

If yes, list these materials and their dollar values: _____

To request a Tax Release, please send this form to:

Idaho State Tax Commission
Attn: Contract Desk; Sales Tax Audit
PO Box 36
Boise, ID 83722

EXHIBIT H

RELEASE OF CLAIMS

(TO BE COMPLETED FOR FINAL PAYMENT)

I, _____, do hereby release the State of Idaho from any and all claims of any character whatsoever arising under and by virtue of contract number _____ Dated _____ as amended, except as herein stated.

Dated _____ Contractor _____

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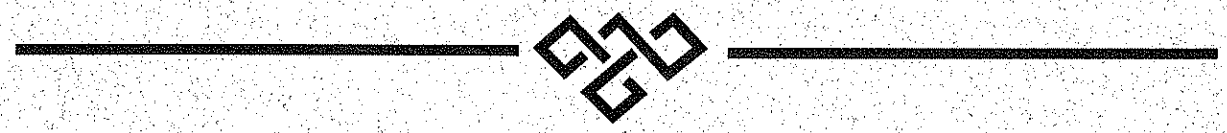
INDUSTRIAL HYGIENE RESOURCES



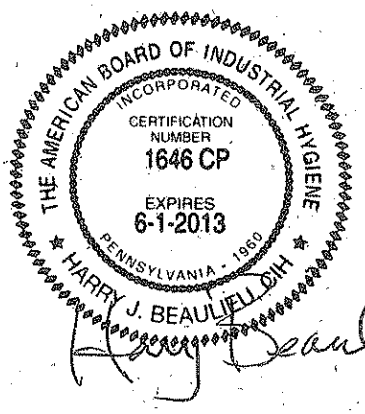
8312 W. Northview, #100, Boise, Idaho 83704 - (208)323-8287
www.IndustrialHygieneResources.com
Celebrating 30 years of service

Presented To:

Mr. Darrel Pewtress
State of Idaho
Division of Public Works
502 N. 4th Street
Boise, ID 83720-0072

January 20, 2012

Report of the Hazardous Materials Inspection Prior to Renovation: University of Idaho Administration Building #001 Moscow, Idaho DPW Project No. 12-923



Presented By:

Industrial Hygiene Resources
8312 W. Northview, Suite 100, Boise, ID 83704 (208) 323-8287
Harry Beaulieu, PhD, CIH, CSP

Introduction:

Industrial Hygiene Resources (IHR: www.industrialhygieneresources.com) of Boise, Idaho was contracted by the State of Idaho Division of Public Works (IDPW) to conduct a hazardous materials inspection of the University of Idaho (UI) Administration building #001. The UI Administration building is located on campus in Moscow, Idaho. On November 18th, 2011, IHR received "Authorization to Proceed" (with work) from Darrel Pewtress, Asbestos Program Manager, for the IDPW. The inspection was limited to asbestos materials and lead-based paints that potentially could be disturbed during renovation activities at the building.

The hazardous materials survey was developed from information supplied by Guy Esser, Project Architect of UI Facilities Services, Rob Miller, Asbestos and Lead-Based Paint Program Manager of UI Environmental Health and Safety and Bison Engineering Resources Asbestos Survey conducted in 1996. Dayle Lundy and Steve Mabe, Project Managers of IHR, conducted the inspection December 27th, through 29th, 2011. Harry J. Beaulieu, President of IHR reviewed the survey report.

Background:

The original administration building was a four story structure constructed in 1891. In 1899 an east wing was added, 1900 an auditorium and third floor, and in 1902 a west wing. In 1906 the original building was destroyed by fire. After the fire, the original building was rebuilt as a three story structure that was completed in 1909. Since then the building has had three separate additions to the building. These additions were the north wing (1912), south wing (1920) and a library addition to the south wing (1936).

The exterior is constructed of brick masonry with a new pitched roof. The pitched roof areas are also the attic areas for the original building and each wing. The original interior walls are plaster with some areas that have been renovated with drywall walls with metal or wood studs. The original ceilings are plaster and are mostly covered with glued on acoustical tiles or suspended ceiling tiles. The original building and north wing was constructed with wood flooring and the south wing was constructed with concrete flooring. The wood or concrete flooring in the hallways, offices and classrooms are covered with 12"or 9" floor tile, sheet vinyl or carpet. The building also has a new elevator that was constructed of masonry units and drywall. The original windows and window frames were constructed with wood and have since had some of the windows renovated with new metal casings. All of the original window frames appear to be in place and have been encased with a metal cap.

The mechanical room is connected to the campus steam central plant (via tunnel) with heating provided to the building via radiant heat radiators to each room of each floor. The piping systems to the radiant heat radiators in the upper levels are insulated with fibrous glass pipe lagging with plastic elbows. The original piping systems in the basement level are insulated with air cell or magnesium silicate (asbestos pipe lagging) with mudded elbows, "T's", and mudded pipe hangers. The heating and cooling duct work is metal with no insulation and the vibration joint cloths were the newer polymeric materials.

Methods:

Asbestos Inspection:

Dayle Lundy, accredited (AHERA)[1] Asbestos Building Inspector performed the survey work on December 27th, through 29th, 2011. Mr. Pewtress provided IHR with a copy of the previous surveys prior to the inspection. The UI Environmental Health and Safety (EHS) and UI Facilities personnel also provided IHR with a copy of the previous surveys and asbestos abatement reports prior to the inspection. All asbestos containing materials (ACM) identified in the previous reports were accepted and assumed to be correct. IHR reviewed previous surveys results and verified that the sampling scheme requirements as specified by the Asbestos Hazard Abatement Re-Authorization Act (ASHARA[2]) for public and commercial buildings were met, since the building is scheduled to be renovated.

The building received a life safety upgrade for the installation of a fire sprinkler suppression system. In support of the life safety upgrade fire sprinkler system, asbestos abatement had taken place in 1996, (reference Asbestos Abatement Monitoring Report IDPW 96-931). The first and second floor restrooms on the south wing of the building have also been recently renovated. IHR verified locations, conditions, and quantities of previously identified ACM (see Figures 1-4 and Table I).

Under current regulations, ACM are defined as materials with an asbestos content greater than 1% by volume. Also, any sample that was analyzed by polarized light microscopy (PLM) and found to contain at least a trace to less than 10% asbestos must be re-analyzed by the "point count method", or the material may be assumed to be ACM. The laboratory results are presented in the Appendix.

Lead-Based Paint and other lead-containing materials (Table II):

The US Department of Housing and Urban Development (HUD) has defined the regulated amount of lead in lead-based paint as 1.0 milligram of lead per square millimeter of surface area (>1.0 mg/mm^2) [3]. Related to the demolition of lead containing materials, the US Occupational Safety and Health Administration is charged with protecting the health of workers (OSHA: www.osha.gov/SLTC/lead/index.html). OSHA considers any amount of lead in paint to have the potential to cause excessive lead exposures to demolition workers (and to their children), and regulates restoration work at this site via its lead in construction standard.

Steve Mabe an accredited EPA Lead Paint Inspector and Risk Assessors performed the survey work on December 27th, through 29th, 2011. Steve used a direct reading, Thermo-Scientific, Niton®, XLp 300 Lead Paint Analyzer to quantify concentrations of lead in paint on surfaces. These included exterior and interior walls, ceilings, floors, window sills, doors, door jambs, ceramic tile and piping. Staff of IHR sampled 215 locations for lead and included periodic calibration checks for accuracy verification.

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[1] AHERA: Asbestos Hazard Emergency Response Act - 1985 ("Asbestos in Schools").
[2] ASHARA: Asbestos School Hazard Abatement Re-Authorization Act (Public & commercial buildings).
[3] The value of 1.0 mg/mm^2 might be roughly equivalent to concentrations of 0.5%, or 5,000 ppm lead via paint-chip sampling methods.

Figure 1
Asbestos Locations - Basement
Administration #001
University of Idaho -Moscow, Idaho
December 19-23, 2011

Legend:

- – – – Thermal System Insulation (Pipe Lagging and Mudded Fittings)
- Vinyl Asbestos Floor Tile and Black Mastic
- Sheet Vinyl Flooring
- 2 'x 4' Suspended Ceiling Tile
- X Exterior Window Frame Caulking (approximate)

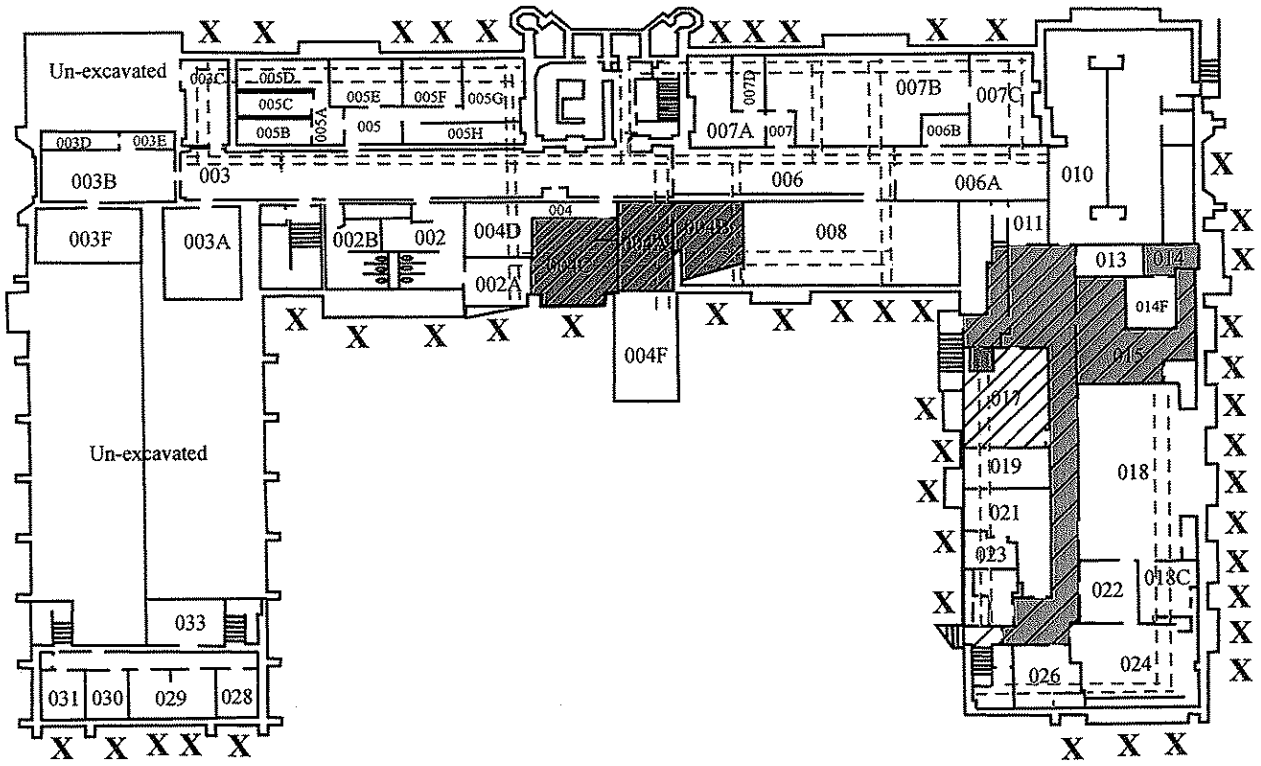


Figure 2
Asbestos Locations - First Floor
Administration #001
University of Idaho -Moscow, Idaho
December 19-23, 2011

Legend:
- – – – Thermal System Insulation (Pipe Lagging and Mudded Fittings)
- Vinyl Asbestos Floor Tile and Black Mastic
- Sheet Vinyl Flooring
- 2 'x 4' Suspended Ceiling Tile
- X Exterior Window Frame Caulking (approximate)
- Exterior Entry Way Soffit, Cement Asbestos Panel (transite)

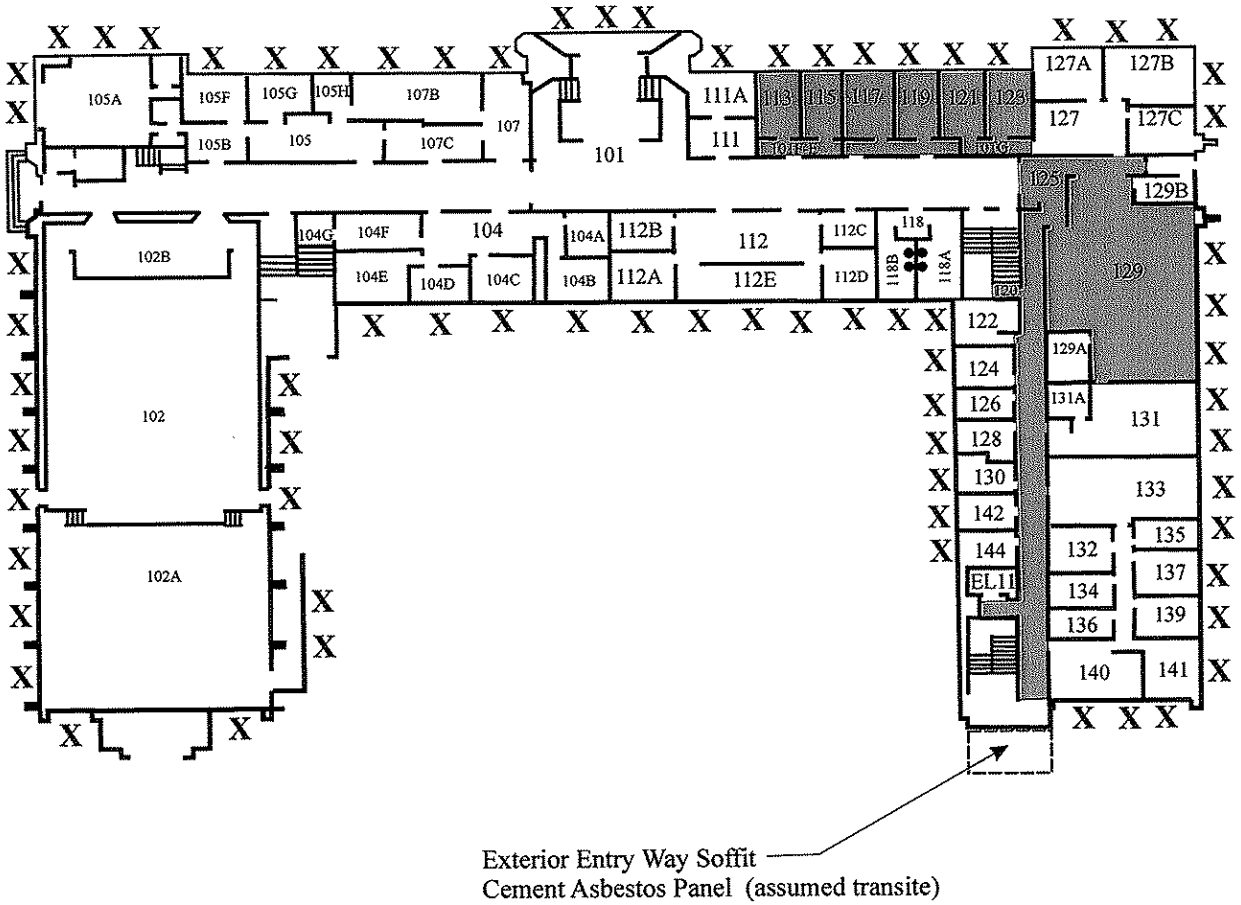


Figure 3
Asbestos Locations - Second Floor
Administration #001
University of Idaho -Moscow, Idaho
December 19-23, 2011

Legend:
- – – – Thermal System Insulation (Pipe Lagging and Mudded Fittings)
- Vinyl Asbestos Floor Tile and Black Mastic
- Sheet Vinyl Flooring
- 2 'x 4' Suspended Ceiling Tile
- X Exterior Window Frame Caulking (approximate)

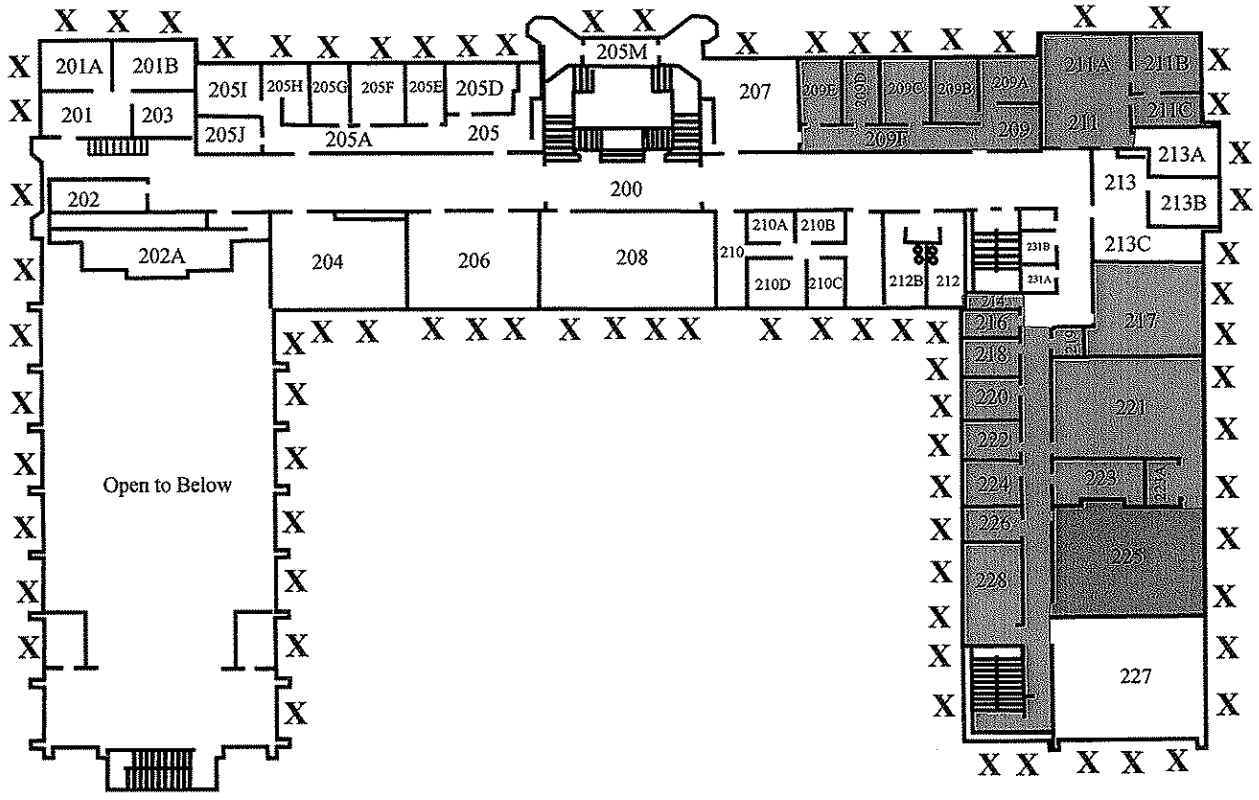
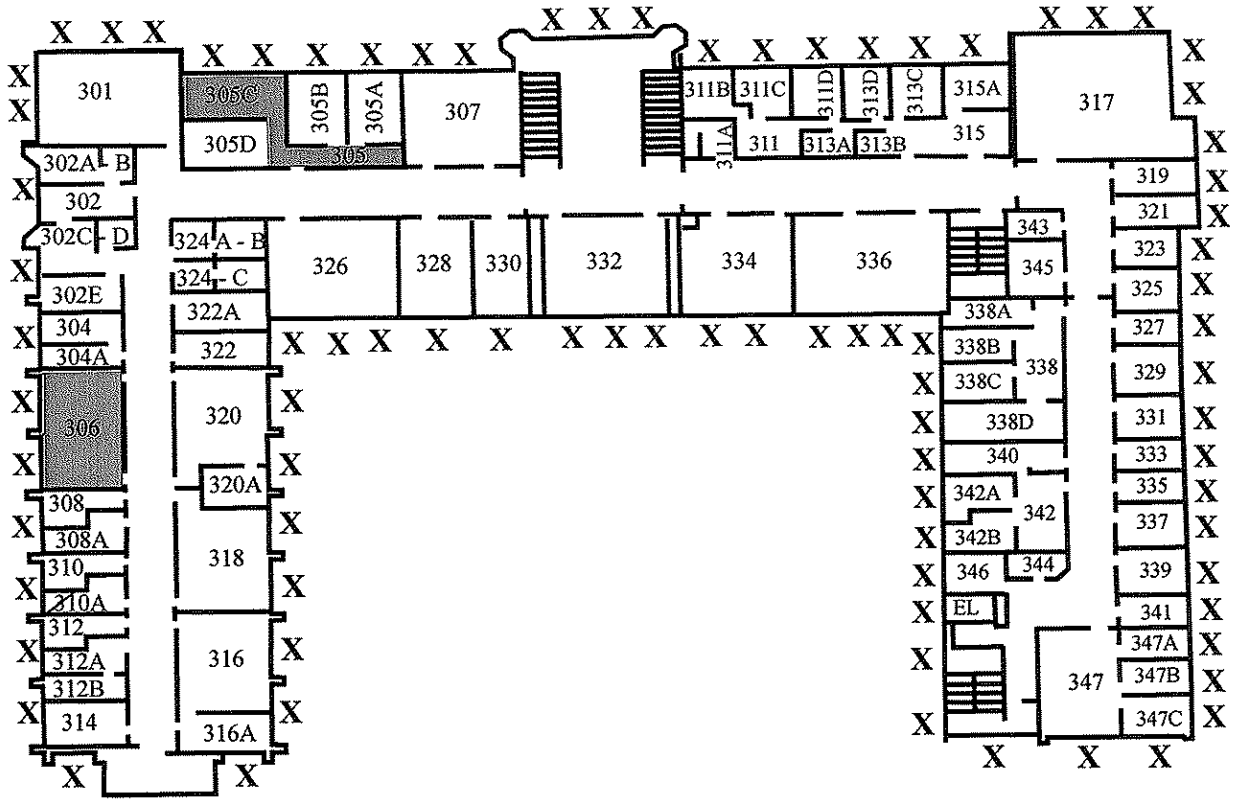


Figure 4
Asbestos Locations - Third Floor
Administration #001
University of Idaho -Moscow, Idaho
December 19-23, 2011

Legend:
- – – – Thermal System Insulation (Pipe Lagging and Mudded Fittings)
- Vinyl Asbestos Floor Tile and Black Mastic
- Sheet Vinyl Flooring
- 2 'x 4' Suspended Ceiling Tile
- X Exterior Window Frame Caulking (approximate)



Results and Discussion:

Asbestos Containing Materials (Figures 1 through 4 and Table I):

Table I documents the presence and concentrations of asbestos found in building materials from previous surveys in this inspection. The building materials found to have regulated amounts of asbestos are as follows;

- Thermal System Insulation:
    - Thermal system insulation pipe lagging with mudded elbows and mudded pipe hangers: Approximately 1,920 linear feet, four to eight inch diameter of insulation with approximately 300 mudded elbows and mudded pipe hangers. These friable materials are located in the basement on the steam and water lines.
- Miscellaneous:
    - Vinyl asbestos floor tile, (9" x 9" and 12" x 12" multiple colors) and black mastic: Approximately 17,200 ft^2. This non-friable material is located in the basement south wing hallway, rooms 014 and 015, first floor south wing hallway, rooms 101 F-E, 101G, 113, 115, 117, 119, 121, 123, 125, 129, second floor south wing hallway, rooms 209, 209A-F, 211, 211 A-C, 214, 216, 217, 218, 219, 220, 221, 222, 223, 223 A, 224, 226, 227 and third floor rooms 305, 305 C and 306.
    - Sheet vinyl flooring, (yellow and green): Approximately 1,770 ft^2. This friable material is located in the basement rooms 004-A, 004B, 004-C and on the second floor room 225.
    - Window frame caulking (exterior): Approximately 450 window frames. This non-friable material is located throughout all floors on the exterior window frames next to the brick veneer (not the glass glazing to the windows).
    - Cement asbestos board (CAB): Approximately 144 ft^2. This non-friable material is located on the south west exterior entry way soffit.
    - 2' x 4' Suspended ceiling tiles: Approximately 3,800 ft^2. This friable material is located in the basement rooms 004A, 004B, 004C, and basement south wing hallway and classroom 015.

Table I
Asbestos Content in Building Materials: UI Administration Building
Sampled by U of I Environmental Health and Safety, Bison Engineering Resources and Industrial Hygiene Resources

Sample Number	Description/Location	Results Percent Asbestos*
B87061	**Floor tile, basement room 22**	**5% Chrysotile**
B87062	**Floor tile, basement room 22**	**5% Chrysotile**
B900407	Pipe insulation, basement room 15	None-detected
B900410	Settling tank, basement room 15	None-detected
B900487	Floor tile, basement room 26	None-detected
B87066	Ceiling tile, basement room 22	None-detected
B87063	**Floor tile, basement room 22**	**15% Chrysotile**
B900485	Floor tile, basement room 26	None-detected
B930130	2' x 2' Ceiling tile, basement room 26	None-detected
B930131	2' x 2' Ceiling tile, basement room 26	None-detected
B87067	Ceiling tile, basement room 22	None-detected
B930133	Pipe elbow insulation, basement room 26	None-detected
B900405	Pipe elbow insulation, basement room 15	None-detected
B900490	Pipe elbow insulation, basement room 26	None-detected
B900394	Pipe lagging insulation, basement room 15	None-detected
B930129	Cove base, basement room 26	None-detected
B87065	Ceiling tile, basement room 22	None-detected
B900489	12" x 12" Wallboard, basement room 26	None-detected
B900488	2' x 2' Ceiling tile, basement room 26	None-detected
B930543	Floor tile, basement room 26	None-detected
B940007	**Pipe elbow, steam pipe, basement room 5-B**	**5% Chrysotile**
B940008	**Pipe elbow, steam pipe, basement room 5-B**	**10% Chrysotile**
B930128	Wall tile mastic, basement room 26	None-detected
B87068	Pipe elbow insulation, basement room 22	None-detected
B87082	Wall core, basement room 22	None-detected
B87083	Wall core, basement room 22	None-detected
B930132	Cove base mastic, basement room 26	None-detected
B900406	Pipe elbow insulation, basement room 15	None-detected
B930134	**Pipe elbow insulation, basement room 26**	**5% Chrysotile**
B930135	Pipe elbow insulation, basement room 26	None-detected
B900409	Pipe elbow insulation, basement next to tunnel	None-detected
B900408	Pipe elbow insulation, basement next to tunnel	None-detected
B85029	**Ceiling tile, basement room 09**	**25% Chrysotile**
B86176	Ceiling tile, basement room 12	None-detected
B87157	Pipe elbow insulation, basement room 20	None-detected
B87156	Pipe lagging insulation, basement room 20	None-detected

*Asbestos containing materials, under current regulation is defined as material with an asbestos content greater than 1% by volume. **Bolded numbers are above the regulatory threshold for regulated asbestos.**
** Samples re-analyzed by point count method

Table I (continued)
Asbestos Content in Building Materials: UI Administration Building
Sampled by U of I Environmental Health and Safety, Bison Engineering Resources and Industrial Hygiene Resources

Sample Number	Description/Location	Results Percent Asbestos*
B87155	**Pipe elbow insulation, 1st floor, room 128**	**10% Chrysotile**
B900392	**Floor tile, 1st floor, room 117**	**2% Chrysotile**
B87078	Wall core, 1st floor, room 130	None-detected
B87085	Wall core, 1st floor, room 130	None-detected
B920064	Window panel, 1st floor, room 118-A	None-detected
B920101	Linoleum, 1st floor, room 118	None-detected
B920529	**Floor tile, 1st floor, room 129**	**10% Chrysotile**
B920529	**Floor tile mastic, 1st floor, room 129**	**10% Chrysotile**
B85167	Ceiling tile, 1st floor, room 112	None-detected
B87074	Ceiling tile, 1st floor, room 130	None-detected
B87075	Ceiling tile, 1st floor, room 130	None-detected
B87073	Floor tile, 1st floor, room 130	None-detected
B85166	Ceiling tile, 1st floor, room 101-E	None-detected
B85168	Ceiling tile, 1st floor, room 105	None-detected
B920056	**Floor tile, 1st floor, room 129**	**5% Chrysotile**
B900265	**Floor tile, 1st floor, room 101G**	**2% Chrysotile**
B920059	**2'X 4' Ceiling tile, 1st floor, room 118**	**5% Chrysotile**
B920059	**2'X 4' Ceiling tile, 1st floor, room 118**	**5% Amosite**
B920060	Wall plaster, 1st floor, room 118	None-detected
B87072	Floor tile, 1st floor, room 130	None-detected
B920062	Cove base, 1st floor, room 118-A	None-detected
B920063	**Linoleum, 1st floor, room 118-A**	**20% Chrysotile**
B86170	Ceiling tile, 1st floor, room 107-C	None-detected
B86145	Ceiling tile, 1st floor, room 102	None-detected
B920058	Linoleum, 1st floor, room118	None-detected
B87084	Wall core, 1st floor, room 130	None-detected
B920061	Cove base, 1st floor, room 118-A	None-detected
B85035	**Ceiling tile, 2nd floor, room 205**	**15% Chrysotile**
B85035	**Ceiling tile, 2nd floor, room 205**	**10% Amosite**
B85059	Wall, 2nd floor, room 209-H	None-detected
B85058	Wall, 2nd floor, room 209-G	None-detected
B890213	2' x 2' Ceiling tile, 2nd floor, room 201	None-detected
B940183	2' x 2' Ceiling tile, 2nd floor, room 212	None-detected
B940182	2' x 2' Ceiling tile, 2nd floor, room 212	None-detected
B910316	Wall plaster, 2nd floor, room 202	None-detected
B910317	Wall plaster, 2nd floor, room 202	None-detected

*Asbestos containing materials, under current regulation is defined as material with an asbestos content greater than 1% by volume. **Bolded numbers are above the regulatory threshold for regulated asbestos.**
** Samples re-analyzed by point count method

Table I (continued)
Asbestos Content in Building Materials: UI Administration Building
Sampled by U of I Environmental Health and Safety, Bison Engineering Resources and Industrial Hygiene Resources

Sample Number	Description/Location	Results Percent Asbestos*
B890266	2' x 2' Ceiling tile, 2nd floor, room 209	None-detected
B890263	2' x 2' Ceiling tile, 2nd floor, room 211	None-detected
B85046	Ceiling material, 2nd floor, room 209-A	None-detected
B85063	Ceiling material, 2nd floor, room 215	None-detected
B85044	Ceiling material, 2nd floor, room 211	None-detected
B85049	Ceiling material, 2nd floor, room 209-C	None-detected
B920016	Sheetrock, 2nd floor, room 201	None-detected
B950161	Cove base, 2nd floor, hallway	None-detected
B940185	Wall plaster, 2nd floor, room 212	None-detected
B890211	2' x 2' Ceiling tile, 2nd floor, room 205-E	None-detected
B85056	Ceiling material, 2nd floor, room 209-F	None-detected
B85057	Ceiling material, 2nd floor, room 209-G	None-detected
B85062	Wall material, 2nd floor, room 215	None-detected
B930363	Cove base mastic, 2nd floor, room 225	None-detected
B85054	Ceiling material, 2nd floor, room 209-E	None-detected
B85061	Ceiling material, 2nd floor, room 213	None-detected
B85048	Ceiling material, 2nd floor, room 209-B	None-detected
B85065	Ceiling material, 2nd floor, room 217	None-detected
B890317	**Floor tile mastic, 2nd floor, room 212**	**5% Chrysotile**
B950063	**Linoleum mastic, 2nd floor, room 225**	**5% Chrysotile**
B930362	Carpet mastic, 2nd floor, room 225	None-detected
B910355	Linoleum and mastic, 2nd floor, room 201-A	None-detected
B930364	Cove base mastic, 2nd floor, room 225	None-detected
B920017	Sheetrock, 2nd floor, room 201-A	None-detected
B910354	Floor leveling compound, 2nd floor, room 201-A	None-detected
B890264	2' x 2' Ceiling tile, 2nd floor, room 213	None-detected
B85064	Wall material, 2nd floor, room 217	None-detected
B85045	Wall material, 2nd floor, room 209-A	None-detected
B85042	Ceiling material, 2nd floor, hallway	None-detected
B85055	Wall material, 2nd floor, room 209-F	None-detected
B950062	Carpet mastic, 2nd floor, room 210	None-detected
B890265	Ceiling tile, 2nd floor, room 217	None-detected
B85053	Wall material, 2nd floor, room 209-E	None-detected
B950061	Carpet mastic, 2nd floor, room 210	None-detected
B930360	Floor tile, 2nd floor, room 225	None-detected
B930361	Floor tile, 2nd floor, room 225	None-detected

*Asbestos containing materials, under current regulation is defined as material with an asbestos content greater than 1% by volume. **Bolded numbers are above the regulatory threshold for regulated asbestos.**
** Samples re-analyzed by point count method

Table I (continued)
Asbestos Content in Building Materials: UI Administration Building
Sampled by U of I Environmental Health and Safety, Bison Engineering Resources and Industrial Hygiene Resources

Sample Number	Description/Location	Results Percent Asbestos*
B87233	12" x 12" Wall tile, 3rd floor, room 320	None-detected
B880026	**2' x 4' Ceiling tile, 3rd floor, room 338**	**5% Amosite**
B940060	Floor tile, 3rd floor, room 332	None-detected
B87404	12" x 12" Ceiling tile, 3rd floor, room 331	None-detected
B87405	12" x 12" Ceiling tile, 3rd floor, room 337	None-detected
B86141	Ceiling material, 3rd floor, room 331	None-detected
B83022	Flooring material, 3rd floor, room 315	None-detected
B87409	**2' x 4' Ceiling tile, 3rd floor, between rooms 340 and 342**	**2% Chrysotile**
B87409	**2' x 4' Ceiling tile, 3rd floor, between rooms 340 and 342**	**5% Amosite**
B890255	**2' x 4' Ceiling tile, 3rd floor, hallway next to room 336**	**5% Amosite**
B890257	**2' x 4' Ceiling tile, 3rd floor, room 317**	**5% Amosite**
B890256	**2' x 4' Ceiling tile, 3rd floor, room 332**	**5% Amosite**
B940189	1' x 1 Ceiling tile, 3rd floor, women restroom	None-detected
B940190	1' x 1 Ceiling tile, 3rd floor, women restroom	None-detected
B87407	Floor tile, 3rd floor, Room 341	None-detected
B940193	**Floor tile, 3rd floor, women restroom**	**5% Chrysotile**
B890261	2' x 4' Ceiling tile, 3rd floor, room 308	None-detected
B940059	**Floor tile, 3rd floor, room 334**	**1% Chrysotile**
B86142	Ceiling tile, 3rd floor, room 314-A	None-detected
B87228	2' x 4' Ceiling tile, 3rd floor, room 310-A	None-detected
B87229	**2' x 4' Ceiling tile, 3rd floor, room 312**	**5% Chrysotile**
B87229	**2' x 4' Ceiling tile, 3rd floor, room 312**	**5% Amosite**
B87376	Floor tile, 3rd floor, room 310-A	None-detected
B86155	Ceiling tile, 3rd floor, hallway outside room 314	None-detected
B87234	Ceiling tile, 3rd floor, room 320	None-detected
B940186	Linoleum, 3rd floor, room 302-C	None-detected
B940187	**Floor tile and mastic, 3rd floor, room 314**	**5% Chrysotile**
B940188	**Floor tile and mastic, 3rd floor, room 314**	**5% Chrysotile**
B890259	**2' x 4' Ceiling tile, 3rd floor, room 326**	**5% Amosite**
B87091	Floor tile, 3rd floor, room 318	None-detected
B87230	2' x 4' Ceiling tile, 3rd floor, room 312-A	None-detected
B890158	**Floor tile, 3rd floor, room 312-A**	**2% Chrysotile**
B87232	Wall tile, 3rd floor, room 318	None-detected
B890069	Ceiling tile, 3rd floor, hallway	None-detected
B87090	**Floor tile, 3rd floor, room 348**	**5% Chrysotile**
B890258	**2' x 4' Ceiling tile, 3rd floor, room 307**	**5% Amosite**

*Asbestos containing materials, under current regulation is defined as material with an asbestos content greater than 1% by volume. **Bolded numbers are above the regulatory threshold for regulated asbestos.**
** Samples re-analyzed by point count method

Table I (continued)
Asbestos Content in Building Materials: UI Administration Building
Sampled by U of I Environmental Health and Safety, Bison Engineering Resources and Industrial Hygiene Resources

Sample Number	Description/Location	Results Percent Asbestos*
1A-28	**Floor tile and mastic, unknown location**	**2% Chrysotile**
1A-29	**Floor tile and mastic, unknown location**	**2% Chrysotile**
1A-30	**Floor tile and mastic, unknown location**	**2% Chrysotile**
1A-31	Sheet vinyl, unknown location	None-detected
1A-32	Sheet vinyl, unknown location	None-detected
1A-33	Sheet vinyl, unknown location	None-detected
1A-34	Carpet mastic, unknown location	None-detected
1A-35	Ceiling tile, unknown location	None-detected
1A-36	Ceiling tile, unknown location	None-detected
1A-37	Cove base mastic, unknown location	None-detected
1A-38	Ceiling tile, unknown location	None-detected
1A-39	Sheet vinyl, unknown location	None-detected
WG01-A	Window glass glazing – south side	
	A. Light tan glazing	None Detected
WG01-B	Window glass glazing – south side	
	A. Light tan glazing	None Detected
WG01-C	Window glass glazing – south side	
	A Light tan glazing	None Detected
WFC01-A	**Window frame caulking to brick – south side**	
	A. Light tan glazing	**2.1%** Chrysotile**
WFC01-B	**Window frame caulking to brick – south side**	
	A. Light tan glazing	**2.5%** Chrysotile**
WFC01-C	**Window frame caulking to brick – south**	
	A. Light tan glazing	**2.3%** Chrysotile**
	B. Light tan glazing	None Detected
	C. Grey cementitious	None Detected

*Asbestos containing materials, under current regulation is defined as material with an asbestos content greater than 1% by volume. **Bolded numbers are above the regulatory threshold for regulated asbestos.**
** Samples re-analyzed by point count method

HUD and EPA-Regulated Lead (Pb) Paint (Table II): Positive results in orange

- All painted exterior window frames and trim (brown).
- Ceramic tile on walls to the basement and 3rd floor restrooms (multiple colors).
- All painted plaster and concrete walls and ceilings in the original 1909 area of the building (multiple colors).
- Painted floor area to the 3rd floor janitor room (green).
- Exterior doors found at the south entrance of the auditorium (brown).
- Painted chalk boards (green).

OSHA-Regulated Lead (Pb) Paint (Table II); Positive results in yellow

- All painted doors in the basement of the 1909 area of the building (multiple colors).
- All painted plaster and concrete walls and ceilings in the north and south wing additions of the building (multiple colors).

Conclusions:

Condition of the Regulated Asbestos Containing Materials

- The sheet vinyl flooring, 9" x 9" and 12" x 12" vinyl floor tile and black mastic located in the office areas, janitor rooms and hallways were rated as in good condition with no signs of damage or deterioration.

- The exterior window frame caulking through out the building area was rated as being in fair condition with signs of damage and deterioration.

- The thermal system insulation pipe lagging with mudded elbows and mudded hangers were rated as being in fair condition with signs of damage and deterioration.

- The 2' x 4' suspended ceiling tiles located in the basement area were rated in good condition with no signs of damage or deterioration.

Non-Regulated Materials (no regulated amounts of asbestos):

- The following building material samples scheduled to be impacted for renovation were found to have no regulated amounts of asbestos (<1% asbestos by volume). Any of these types of building materials generated from remodeling or demolition activities can be discarded as general construction debris at the local landfill.
  - ✓ Thermal system insulation heating water with fiber glass pipe lagging and plastic elbows
  - ✓ Wall and ceiling plasters
  - ✓ Drywall with joint compound mud and tape on the walls
  - ✓ Cove base and mastic
  - ✓ Attic insulation
  - ✓ Exterior window glass glazing
  - ✓ 12" x 12"" and 2' x 2' glued-on ceiling tiles
  - ✓ 2' x 4' and 2' x 2' suspended ceiling tiles on the first, second and third floors

Condition of the Lead-Based Paint:

- The paint on the exterior windows were peeling and delaminating from the substrate.

- The interior painted doors were intact.

- The ceramic tile was intact.

- The majority of the plaster and concrete walls and ceilings were intact. Some areas were blistered as a result of water intrusion in the basement areas, exterior walls and ceilings.

- The paint on the exterior doors located at the south entrance of the auditorium were peeling and delaminating from the substrate.

- The painted floor in the janitor room and painted chalk boards were intact.

Recommendations:

Asbestos:

- A specification for asbestos abatement should be developed by a qualified asbestos (AHERA) project designer and incorporated into the contract with the asbestos abatement contractor.

- Prior to renovation requiring the removal of asbestos above the threshold of 160 square feet, a 10-day notification must be filed with Environmental Protection Agency (EPA). IHR recommends that all asbestos containing materials (ACM) be abated by a qualified contractor utilizing AHERA trained and accredited personnel prior to demolition. Upon removal, all ACM must be disposed of at a landfill qualified to accept asbestos containing waste material.

Lead-Based Paint:

- The lead base paint found in the interior and exterior will need to be stabilized under controlled conditions. Workers, school staff and students should be protected from the hazards of disturbing lead in the renovation work as required in the OSHA Lead in Construction standard (Lead - 1926.62).

- We can develop a scope of work for safe lead work practices and ultimately prevent lead dust contamination during renovation. This scope of work is not for complete lead abatement.

- The Idaho DEQ requires that demolition waste materials be characterized for lead to determine if the debris is a hazardous waste (via the Toxicity Characterization Leachate Procedure (TCLP-Pb). We can collect composite samples of building materials following the ASTM Method E 1908-03 to characterize what ultimately will be demolition debris.

Dayle Lundy
Project Manager
Industrial Hygiene Resources

Reviewed by:

Harry J. Beaulieu, PhD, CIH, CSP
President
Industrial Hygiene Resources

Limitations/Disclaimer

- The scope of the investigation described in this report has been limited by agreement of the parties based upon financial and other considerations. Further, the scope of this report is limited to the matters expressly covered herein. The investigation, testing and analysis of compounds and materials at the site have been limited to those compounds and materials set out in the parties' agreement. Other compounds or materials not tested for could be present at the site.

- The investigation, testing and analysis described in this report has been undertaken and performed in a professional manner in accordance with generally accepted practices, using the degree of skill and care ordinarily exercised by a Diplomat of the American Board of Industrial Hygiene (ABIH); a "Certified Industrial Hygienist (CIH)".

- During the investigation and in preparing this report we have relied upon information provided by third parties, including independent laboratories and testing services (with appropriate accreditations). It is believed that the information obtained from others during the investigation is reasonable. However, it is not warranted or guaranteed that the information provided by others is complete or accurate.

- The investigation and this report are limited to the conditions present at the time of the site visits and inspections, and to the information available at the time this report was prepared. However, there is a distinct possibility that conditions, compounds or materials may exist which could not be identified within the agreed scope of this investigation or which were not apparent during site inspections or testing. Should any additional information become available, or should additional site work be undertaken, consultant should be notified so that we can determine if modification should be made to this report.

- Where indicated or implied in this report, or where mandated by the condition of the site including its structure/improvements, the conclusions of this report are based on visual observations of the site. The conclusions of this report do not apply to any areas of the site not available for inspection or testing.

- It should be recognized that the investigation and evaluation of environmental conditions is a science and an art. Judgments leading to conclusions and recommendations are at times made with an incomplete knowledge of all conditions applicable to the site. More detailed, focused and/or extensive studies can tend to reduce the inherent uncertainties associated with the evaluation of environmental conditions. No warranty, express or implied, is given.

- This report is prepared for and intended for the exclusive use of the company, organization or individual to whom it is addressed. It may not be used or relied upon in any manner or for any purpose whatsoever by any other party without written authorization by IHR.

Appendix

Table II
Concentrations of Lead in Surfaces
University of Idaho-Administration Building
Moscow, Idaho
December 28-29, 2011

Reading No	Componenet	Substrate	Side	Room	Condition	Color	Floor	Area	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error	Depth Index
1	CALIBRATION CHECK					ORANGE			1	0.1	1	0.1	< LOD	0.37	1.13
2	WINDOW	WOOD	WEST		PEELING	BROWN		EXTERIOR	1.8	0.6	0.8	0.1	1.8	0.6	1.56
3	WINDOW SILL	WOOD	WEST		PEELING	BROWN		EXTERIOR	0.5	0.2	0.5	0.2	< LOD	1.65	1.86
4	WINDOW	WOOD	WEST		PEELING	BROWN		EXTERIOR	2.5	0.7	1	0.1	2.5	0.7	1.6
5	HANDRAIL	METAL	WEST		CHALKING	BROWN		EXTERIOR	< LOD	0.1	< LOD	0.1	< LOD	2.55	1.59
6	SOFFIT	CONCRETE	WEST		PEELING	BROWN		EXTERIOR	1.7	0.4	1.7	0.4	< LOD	2.55	1.49
7	COLUMN	METAL	WEST		PEELING	BROWN		EXTERIOR	1.3	0.2	1.3	0.2	1.4	0.9	1.41
8	WINDOW	METAL	SOUTH		PEELING	GREY		EXTERIOR	15.8	3.2	10.1	6.2	15.8	3.2	5.31
9	WINDOW TRIM	METAL	SOUTH		PEELING	GREY		EXTERIOR	3.6	1	2	0.5	3.6	1	2.15
10	WINDOW SILL	METAL	SOUTH		PEELING	GREY		EXTERIOR	1.2	0.2	1.2	0.2	1.2	0.5	2.18
11	WINDOW SILL	CONCRETE	EAST	HALL	INTACT	WHITE	BASEMENT	INTERIOR	< LOD	0.75	0.12	0.04	< LOD	0.75	2.25
12	DOOR	METAL	EAST	3	INTACT	WHITE	BASEMENT	INTERIOR	< LOD	0.4	< LOD	0.4	< LOD	1.95	3.89
13	DOOR	WOOD	EAST	3A	INTACT	WHITE	BASEMENT	INTERIOR	0.09	0.05	0.09	0.05	< LOD	0.7	1.98
14	DOOR	WOOD	EAST	3B	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.14	< LOD	0.14	< LOD	1.2	1.61
15	DOOR JAMB	WOOD	EAST	3B	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.08	< LOD	0.08	< LOD	1.5	1
16	WALL	CONCRETE	A	3B	INTACT	GREEN	BASEMENT	INTERIOR	1.5	0.5	0.23	0.05	1.5	0.5	2.17
17	WALL	CONCRETE	B	3B	INTACT	WHITE	BASEMENT	INTERIOR	1.6	0.6	0.06	0.02	1.6	0.6	1.61
18	WALL	CONCRETE	C	3B	INTACT	WHITE	BASEMENT	INTERIOR	1.6	0.5	0.05	0.02	1.6	0.5	1.62
19	WALL	CMU	B	3A	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.9	1.42
20	WALL	CMU	C	3A	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	0.9	1.27
21	DOOR	WOOD	C	3A	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.11	< LOD	0.11	< LOD	1.35	1.2
22	DOOR TRIM	WOOD	C	3A	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.09	< LOD	0.09	< LOD	1.52	1.07
23	WALL	CONCRETE	A	3A	INTACT	GREEN	BASEMENT	INTERIOR	1.6	0.5	0.2	0.05	1.6	0.5	1.94
24	WALL	DRYWALL	C	5	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	1.35	1
25	DOOR	WOOD	A	5	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.09	< LOD	0.09	< LOD	1.35	1.14
26	WALL	PLASTER	WEST	5	INTACT	WHITE	BASEMENT	INTERIOR	3.7	1.2	3.7	1.2	4	2.1	3.73
27	WALL	PLASTER	EAST	5	INTACT	WHITE	BASEMENT	INTERIOR	5.8	2.7	5.2	1.6	5.8	2.7	3.37
28	WALL	PLASTER	EAST	HALL	INTACT	WHITE	BASEMENT	INTERIOR	4.8	1.6	4.8	1.6	4.8	2.5	3.96
29	WALL	PLASTER	EAST	HALL	INTACT	WHITE	BASEMENT	INTERIOR	6.7	2.6	6.4	1.9	6.7	2.6	3.34
30	CEILING	PLASTER		HALL	INTACT	WHITE	BASEMENT	INTERIOR	4.4	1.4	4.4	1.4	5.8	2.7	2.98
31	DUCTING	METAL		HALL	INTACT	WHITE	BASEMENT	INTERIOR	< LOD	0.9	< LOD	0.49	< LOD	0.9	10
32	DOOR	WOOD	A	4	INTACT	GREY	BASEMENT	INTERIOR	0.26	0.15	0.26	0.15	< LOD	1.35	1.53
33	WALL	CONCRETE	C	4-BREAK RM	INTACT	GREY	BASEMENT	INTERIOR	4.8	2.1	4.3	2.4	4.8	2.1	10
34	WINDOW	WOOD	C	4-BREAK RM	INTACT	GREY	BASEMENT	INTERIOR	2.8	1.2	2.8	1.2	2.3	1.3	6.05
35	WINDOW SILL	WOOD	C	4-BREAK RM	INTACT	GREY	BASEMENT	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.2	1.5
36	CABINET	WOOD	C	4-BREAK RM	INTACT	GREY	BASEMENT	INTERIOR	< LOD	0.11	< LOD	0.11	< LOD	1.23	1.96
37	WALL	DRYWALL	A	4-BREAK RM	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.76	1.06
38	WALL	CONCRETE	EAST	4-BREAK RM	INTACT	RUST	BASEMENT	INTERIOR	0.16	0.03	0.16	0.03	1	0.3	1.8
39	DOOR	WOOD	A	7-A	INTACT	GREEN	BASEMENT	INTERIOR	< LOD	0.24	< LOD	0.24	< LOD	1.2	1.96
40	WALL	DRYWALL	D	7-A	INTACT	WHITE	BASEMENT	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.72	1
41	CEILING	CONCRETE		7-A	INTACT	WHITE	BASEMENT	INTERIOR	1.7	0.5	0.2	0.06	1.7	0.5	3.47
42	WINDOW	WOOD	C	7-B	INTACT	GREEN	BASEMENT	INTERIOR	4.5	0.8	4.5	0.8	3.7	1.5	1.69
43	DOOR	WOOD		HALL	INTACT	VARNISH	BASEMENT	INTERIOR	< LOD	0.16	< LOD	0.16	< LOD	1.05	2.76
44	Ceramic Tile	CONCRETE	FLOOR	WOMANS R ROOM	INTACT		BASEMENT	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.2	2.05
45	CERAMIC TILE	CONCRETE	WALL	WOMANS R ROOM	INTACT	YELLOW	BASEMENT	INTERIOR	11.4	2.8	7.7	1.5	11.4	2.8	2.03
46	WALL	CMU	B	WEST ENTRY	INTACT	WHITE	BASEMENT	INTERIOR	< LOD	0.05	< LOD	0.05	< LOD	1.05	1.81
47	WALL	PLASTER	B	100-C WEST ENTRY	INTACT	BROWN	FIRST	INTERIOR	17.3	3.8	< LOD	60	17.3	3.8	3.72
48	WALL	PLASTER	B	100-C WEST ENTRY	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.13	1.48
49	BASEBOARD	WOOD	B	100-C WEST ENTRY	CRACKED	BROWN	FIRST	INTERIOR	< LOD	0.13	< LOD	0.13	< LOD	1.35	1.32
50	WALL-HIGH	WOOD	D	100-C WEST ENTRY	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.11	< LOD	0.11	< LOD	1.05	3.44
51	WALL	PLASTER	D	100-C WEST ENTRY	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	1.05	1.62
52	WALL-LOW	PLASTER	WEST	MAIN HALLWAY	INTACT	BROWN	FIRST	INTERIOR	20.1	5	< LOD	20.4	20.1	5	4.18

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Concentrations of Lead in Surfaces
University of Idaho-Administration Building
Moscow, Idaho
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Reading No	Componenet	Substrate	Side	Room	Condition	Color	Floor	Area	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error	Depth Index
53	WALL-HIGH	PLASTER	WEST	MAIN HALLWAY	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.9	2
54	WALL-HIGH	PLASTER	EAST	MAIN HALLWAY	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	1.05	3.03
55	WALL-LOW	PLASTER	EAST	MAIN HALLWAY	INTACT	BROWN	FIRST	INTERIOR	13.9	3.9	< LOD	21.3	13.9	3.9	4.48
56	BASEBOARD	WOOD	EAST	MAIN HALLWAY	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.1	< LOD	0.1	< LOD	1.5	1.6
57	RADIATOR	METAL	EAST	MAIN HALLWAY	INTACT	SILVER	FIRST	INTERIOR	< LOD	0.11	< LOD	0.11	< LOD	2.25	1.86
58	WALL	PLASTER	SOUTH	MAIN HALLWAY	INTACT	WHITE	BASEMENT-SOUTH WING	INTERIOR	< LOD	0.13	< LOD	0.13	< LOD	0.9	5.39
59	DOOR JAMB	METAL	SOUTH	MAIN HALLWAY	INTACT	BROWN	BASEMENT-SOUTH WING	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.92	1.76
60	DOOR	WOOD	SOUTH	MAIN HALLWAY	INTACT	VARNISH	BASEMENT-SOUTH WING	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.11	1
61	WALL	PLASTER	NORTH	EXIT HALLWAY	INTACT	WHITE	BASEMENT-SOUTH WING	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	0.99	2.18
62	WALL	PLASTER	D	11	PEELING	YELLOW	BASEMENT-SOUTH WING	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.05	3.2
63	WINDOW	WOOD	NORTH		PEELING	BROWN	BASEMENT-SOUTH WING	INTERIOR	17.5	4.4	10.1	3.6	17.5	4.4	2.51
64	DOOR	WOOD	SOUTH	AUD	PEELING	BROWN	FIRST	EXTERIOR	21.5	4.4	< LOD	14.1	21.5	4.4	6.81
65	SPEAKER TRIM	WOOD	STAGE	AUD	INTACT	VARNISH	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.66	1
66	FLOOR	WOOD	STAGE	AUD	INTACT	BLACK	FIRST	INTERIOR	< LOD	0.09	< LOD	0.09	< LOD	1.65	1.45
67	DOOR	WOOD	STAGE-NW EXIT	AUD	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.49	1
68	WALL	PLASTER	STAGE-NW STAIRWI	AUD	INTACT	ORANGE	FIRST	INTERIOR	3.4	1.1	3.4	1.1	3.8	2.1	3.51
69	HANDRAIL	METAL	STAGE-NW STAIRWEI	AUD	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	2.32	1
70	WALL	PLASTER	STAGE-NW STAIRWI	AUD	INTACT	ORANGE	FIRST	INTERIOR	3.9	1.2	3.9	1.2	5.5	2.2	3.87
71	WALL	PLASTER	STAGE-NW STAIRWI	AUD	PEELING	ORANGE	FIRST	INTERIOR	3.4	1	3.4	1	4.7	2.4	2.91
72	WALL	PLASTER	A	WOMENS DRESSING F	PEELING	WHITE	FIRST	INTERIOR	10	3.2	6.3	3.5	10	3.2	9.13
73	WALL	PLASTER	B	WOMENS DRESSING F	PEELING	WHITE	FIRST	INTERIOR	8.9	3	6.4	3.8	8.9	3	10
74	WINDOW	WOOD	C	WOMENS DRESSING RI	PEELING	WHITE	FIRST	INTERIOR	< LOD	0.12	< LOD	0.12	< LOD	1.5	2.06
75	WINDOW SILL	WOOD	C	WOMENS DRESSING RI	PEELING	WHITE	FIRST	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	1.2	1
76	FLOOR	WOOD		EQUIP STORAGE	PEELING	PINK	FIRST	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.35	1.95
77	DOOR	WOOD	A	CENTER DRESSING RI	INTACT	TAN	FIRST	INTERIOR	0.4	0.2	0.4	0.2	< LOD	0.9	3.43
78	WALL	PLASTER	NORTH	AUDITORIUM	INTACT	WHITE	FIRST	INTERIOR	3.8	1.6	3.8	1.6	5.6	2.3	6.05
79	WALL	PLASTER	SOUTH	AUDITORIUM	INTACT	WHITE	FIRST	INTERIOR	2.6	0.9	2.6	0.9	3.8	1.8	4.45
80	WINDOW SILL	WOOD	SOUTH	AUDITORIUM	INTACT	VARNISH	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.77	1
81	STAINED GLASS WINDO	METAL	SOUTH	AUDITORIUM	INTACT		FIRST	INTERIOR	47.7	8.2	9.9	2.5	47.7	8.2	1.79
82	COLUMN	CONCRETE	SOUTH	MAIN ENTRY-EAST	INTACT	TAN	FIRST	INTERIOR	1.1	0.1	1.1	0.1	1.3	0.4	2.31
83	WALL	PLASTER	A	120	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.75	0.12	0.06	< LOD	0.75	2.57
84	WALL	PLASTER	C	124	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.3	< LOD	0.3	< LOD	1.36	3.43
85	WINDOW	WOOD	C	124	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.35	1.09
86	WINDOW	WOOD	C	124	INTACT	BROWN	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.65	1
87	WINDOW	WOOD	C	128	INTACT	BROWN	FIRST	INTERIOR	0.05	0.03	0.05	0.03	< LOD	0.72	1.02
88	WALL	PLASTER	C	128	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.9	1
89	WALL	DRYWALL	A	128	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.83	1
90	WALL	DRYWALL	C	142	INTACT	WHITE	FIRST	INTERIOR	0.26	0.07	0.26	0.07	1	0.3	5.2
91	RADIATOR	METAL	C	142	INTACT	WHITE	FIRST	INTERIOR	< LOD	0.16	< LOD	0.16	< LOD	1.96	1.98
92	CALIBRATION CHECK					ORANGE			1	0.1	1	0.1	0.8	0.3	1.09
93	WALL	PLASTER	A	301	INTACT	WHITE	THIRD	INTERIOR	0.8	0.2	0.8	0.2	< LOD	0.9	4.54
94	WALL	PLASTER	B	301	INTACT	WHITE	THIRD	INTERIOR	1.2	0.2	1.2	0.2	1.4	0.4	6.88
95	WALL	PLASTER	C	301	INTACT	WHITE	THIRD	INTERIOR	1.2	0.2	1.2	0.2	1.1	0.5	4.72
96	WINDOW SILL	WOOD	C	301	CRACKED	VARNISH	THIRD	INTERIOR	< LOD	0.08	< LOD	0.08	< LOD	1.54	1
97	BASEBOARD	WOOD	C	301	CRACKED	VARNISH	THIRD	INTERIOR	< LOD	0.05	< LOD	0.05	< LOD	1.65	1
98	RADIATOR	METAL	C	301	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.2	< LOD	1.2	3.3
99	WALL	DRYWALL	D	301	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.88	1
100	WALL	PLASTER	D	301	INTACT	WHITE	THIRD	INTERIOR	1.2	0.1	1.2	0.1	1.1	0.4	5.3
101	CHALK BOARD		D	301	INTACT	BLACK	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.98	1.09
102	CHALK BOARD		A	301	INTACT	GREEN	THIRD	INTERIOR	2.9	0.6	2.9	0.6	< LOD	3	1.37
103	DOOR JAMB	METAL	A	301	INTACT	BROWN	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	2.31	1
104	WALL	PLASTER	EAST	HALL	INTACT	BROWN	THIRD	INTERIOR	4.9	1.3	5.4	0.9	4.9	1.3	3.69
105	WALL	PLASTER	A	HALL	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.29	1.45

Table II
Concentrations of Lead in Surfaces
University of Idaho-Administration Building
Moscow, Idaho
December 28-29, 2011

Reading No	Componenet	Substrate	Side	Room	Condition	Color	Floor	Area	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error	Depth Index
106	WALL	PLASTER	A	322-A	INTACT	WHITE	THIRD	INTERIOR	< LOD	1.09	0.17	0.1	< LOD	1.09	4
107	WALL	PLASTER	B	322-A	INTACT	WHITE	THIRD	INTERIOR	< LOD	1.07	0.18	0.09	< LOD	1.07	3.46
108	**WALL**	**PLASTER**	**C**	**322-A**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.18**	**0.07**	**0.18**	**0.07**	**< LOD**	**1.05**	**2.52**
109	WINDOW SILL	WOOD	C	322-A	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.24	< LOD	0.24	< LOD	1.65	2.35
110	WINDOW SILL	WOOD	C	306	INTACT	TAN	THIRD	INTERIOR	< LOD	0.34	< LOD	0.34	< LOD	1.5	3.31
111	**WALL**	**PLASTER**	**C**	**306**	**INTACT**	**TAN**	**THIRD**	**INTERIOR**	**0.17**	**0.1**	**0.17**	**0.1**	**< LOD**	**1.2**	**3.96**
112	**WALL**	**PLASTER**	**A**	**306**	**INTACT**	**TAN**	**THIRD**	**INTERIOR**	**0.15**	**0.08**	**0.15**	**0.08**	**< LOD**	**1.1**	**3.04**
113	WALL	PLASTER	B	306	INTACT	TAN	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	0.8	0.3	3.04
114	WALL	PLASTER	D	308	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.6	0.5	0.1	< LOD	0.6	2.66
115	WALL	DRYWALL	B	308	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.95	1
116	DOOR JAMB	WOOD	A	308	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.2	< LOD	0.2	< LOD	1.35	2.29
117	WALL	PLASTER	C	312	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.75	0.29	0.07	< LOD	0.75	2.94
118	WINDOW TRIM	WOOD	C	312	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.16	< LOD	0.16	< LOD	0.67	4.61
119	**WINDOW TRIM**	**WOOD**	**C**	**305-C**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2.3**	**0.8**	**2.3**	**0.8**	**< LOD**	**1.95**	**3.54**
120	**WINDOW SILL**	**WOOD**	**C**	**305-C**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2.2**	**0.9**	**2.3**	**0.9**	**2.2**	**0.9**	**5.43**
121	WALL	PLASTER	C	305-C	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.09	< LOD	0.09	< LOD	1.05	4.1
122	**WALL**	**PLASTER**	**C**	**305-C**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**3.3**	**1.4**	**3.3**	**1.4**	**3.2**	**1.9**	**6.18**
123	**BOOKCASE**	**WOOD**	**B**	**305-C**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2.5**	**0.8**	**2.5**	**0.8**	**2.3**	**1.3**	**3.06**
124	**WALL**	**PLASTER**	**B**	**305-C**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**5.3**	**2.3**	**6**	**2**	**5.3**	**2.3**	**4.45**
125	BASEBOARD	WOOD	B	305-C	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.35	1.43
126	WALL	DRYWALL	A	305-C	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.87	1.78
127	DOOR JAMB	WOOD	A	305-C	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.25	< LOD	0.25	< LOD	1.29	3.53
128	CHALK BOARD TRIM	WOOD	D	305-C	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.23	< LOD	0.23	< LOD	1.5	2.88
129	CHALK BOARD		D	326	INTACT	GREEN	THIRD	INTERIOR	< LOD	0.13	< LOD	0.13	< LOD	1.95	1.25
130	WINDOW SILL	WOOD	D	326	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.29	< LOD	0.29	< LOD	1.65	2.85
131	**WALL**	**PLASTER**	**D**	**326**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**10.9**	**3.2**	**9.5**	**5.6**	**10.9**	**3.2**	**10**
132	**WALL**	**PLASTER**	**C**	**326**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**14.4**	**4**	**9.3**	**5.5**	**14.4**	**4**	**8.91**
133	WALL	PLASTER	A	326	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.75	1.49
134	**WALL**	**PLASTER**	**A**	**326**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**11.6**	**3.3**	**6.9**	**3.9**	**11.6**	**3.3**	**10**
135	**WALL**	**PLASTER**	**A**	**330**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**9.5**	**3.1**	**8.1**	**3.2**	**9.5**	**3.1**	**5.1**
136	WALL	PLASTER	A	330	INTACT	WHITE	THIRD	INTERIOR	< LOD	1.01	0.12	0.07	< LOD	1.01	2.38
137	CABINET	WOOD	B	330	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.27	< LOD	0.27	< LOD	1.4	2.39
138	BOOKCASE	WOOD	D	330	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.1	< LOD	0.1	< LOD	1.27	1.95
139	WINDOW SILL	WOOD	C	330	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.3	< LOD	0.3	< LOD	1.65	2.71
140	RADIATOR	METAL	C	330	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.17	< LOD	0.17	< LOD	2.6	2.03
141	**WALL-LOW**	**PLASTER**	**A**	**307**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**13.6**	**3.3**	**10.1**	**4.3**	**13.6**	**3.3**	**6.2**
142	**WALL-LOW**	**PLASTER**	**C**	**307**	**PEELING**	**WHITE**	**THIRD**	**INTERIOR**	**6.1**	**1.2**	**6.1**	**1.4**	**6.1**	**1.2**	**7.71**
143	**WINDOW SILL**	**WOOD**	**C**	**307**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.1**	**0.05**	**0.1**	**0.05**	**< LOD**	**0.63**	**1.97**
144	WALL	PLASTER	SOUTH	310-stairwells	INTACT	BROWN	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.18	1
145	WALL	PLASTER	SOUTH	310-stairwells	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.25	1
146	**WINDOW**	**WOOD**	**EAST**	**310-stairwells**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.16**	**0.04**	**0.16**	**0.04**	**< LOD**	**0.6**	**1.03**
147	HANDRAIL	WOOD	SOUTH	310-stairwells	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.11	< LOD	0.11	< LOD	1.64	1.19
148	HANDRAIL	WOOD	SOUTH	310-stairwells	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	1.8	1.7
149	DOOR	WOOD	SOUTH	310-stairwells	INTACT	BROWN	THIRD	INTERIOR	< LOD	0.05	< LOD	0.05	< LOD	1.41	1
150	**WALL**	**PLASTER**	**A**	**332**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**8.1**	**2.9**	**6.2**	**3.2**	**8.1**	**2.9**	**8.83**
151	WALL-HIGH	PLASTER	A	332	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.89	< LOD	0.04	< LOD	0.89	2.47
152	**WINDOW SILL**	**WOOD**	**C**	**332**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.8**	**0.2**	**0.8**	**0.2**	**0.8**	**0.4**	**4.39**
153	WINDOW SILL	WOOD	C	334	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.39	< LOD	0.39	< LOD	1.5	4.55
154	**WALL**	**PLASTER**	**C**	**334**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**6.8**	**2.3**	**6.5**	**2.9**	**6.8**	**2.3**	**8.13**
155	WALL-HIGH	PLASTER	C	334	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	1.1	2.21
156	**WALL**	**PLASTER**	**D**	**334**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**10**	**3**	**7.8**	**3.5**	**10**	**3**	**7**
157	WALL	PLASTER	A	334	INTACT	WHITE	THIRD	INTERIOR	LOD	0.03	LOD	0.03	LOD	0.9	1.85

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Reading No	Componenet	Substrate	Side	Room	Condition	Color	Floor	Area	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error	Depth Index
158	DOOR JAMB	PLASTER	A	334	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.26	< LOD	0.26	< LOD	1.5	2.77
159	WALL	DRYWALL	C	315	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.08	< LOD	0.08	< LOD	0.81	2.85
160	**WALL**	**PLASTER**	**C**	**315-A**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.9**	**0.1**	**0.9**	**0.1**	**1**	**0.3**	**4.04**
161	**WALL**	**PLASTER**	**A**	**317**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**4.2**	**1.7**	**4.2**	**1.7**	**4.8**	**2.3**	**5.71**
162	**WALL**	**PLASTER**	**B**	**317**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2.2**	**0.6**	**2.2**	**0.6**	**1.7**	**0.9**	**7.73**
163	**WALL**	**PLASTER**	**C**	**317**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2.9**	**0.8**	**2.9**	**0.8**	**3.5**	**2.3**	**2.53**
164	WINDOW SILL	WOOD	C	317	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.16	< LOD	0.16	< LOD	1.35	2.57
165	BASEBOARD	WOOD	C	317	INTACT	WHITE	THIRD	INTERIOR	< LOD	1.01	< LOD	1.01	< LOD	2.37	7.13
166	**WALL**	**PLASTER**	**D**	**317**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**2**	**0.5**	**2**	**0.5**	**1.9**	**0.9**	**6.39**
167	BOOKCASE	WOOD	D	317	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.2	< LOD	0.2	< LOD	1.76	2.16
168	**FLOOR**	**CONCRETE**		**343**	**INTACT**	**GREEN**	**THIRD**	**INTERIOR**	**1.5**	**0.2**	**1.5**	**0.2**	**1.8**	**0.7**	**2.1**
169	**WALL**	**PLASTER**	**D**	**343**	**INTACT**	**GREEN**	**THIRD**	**INTERIOR**	**2.6**	**0.7**	**2.6**	**0.7**	**< LOD**	**3.3**	**2.31**
170	**WALL**	**PLASTER**	**B**	**343**	**INTACT**	**GREEN**	**THIRD**	**INTERIOR**	**2.3**	**0.6**	**2.3**	**0.6**	**< LOD**	**2.85**	**2.03**
171	DOOR JAMB	WOOD	A	343	INTACT	GREEN	THIRD	INTERIOR	< LOD	0.12	< LOD	0.12	< LOD	1.44	1.3
172	**FLOOR**	**CONCRETE**		**343**	**INTACT**	**GREEN**	**THIRD**	**INTERIOR**	**1.5**	**0.2**	**1.5**	**0.2**	**1.8**	**0.8**	**2.08**
173	**Ceramic Tile**	**CONCRETE**		**WOMEN**	**INTACT**	**PINK**	**THIRD**	**INTERIOR**	**24**	**5.5**	**10.1**	**2.9**	**24**	**5.5**	**2.05**
174	**Ceramic Tile**	**CONCRETE**		**WOMEN**	**INTACT**	**BROWN**	**THIRD**	**INTERIOR**	**15.1**	**4.4**	**7.7**	**2.1**	**15.1**	**4.4**	**2.13**
175	**WALL**	**PLASTER**		**SOUTH HALLWAY**	**INTACT**	**BROWN**	**THIRD**	**INTERIOR**	**8.7**	**3.1**	**7.2**	**3.1**	**8.7**	**3.1**	**6.09**
176	**WALL-high**	**PLASTER**		**SOUTH HALLWAY**	**INTACT**	**BROWN**	**THIRD**	**INTERIOR**	**0.07**	**0.04**	**0.07**	**0.04**	**< LOD**	**1.2**	**1.72**
177	**WALL**	**PLASTER**	**A**	**337**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.7**	**0.2**	**0.7**	**0.2**	**< LOD**	**0.75**	**5.96**
178	**WALL**	**PLASTER**	**B**	**337**	**INTACT**	**BLUE**	**THIRD**	**INTERIOR**	**0.6**	**0.2**	**0.6**	**0.2**	**< LOD**	**1.2**	**3.69**
179	**WALL**	**PLASTER**	**C**	**337**	**INTACT**	**BLUE**	**THIRD**	**INTERIOR**	**0.5**	**0.2**	**0.5**	**0.2**	**< LOD**	**1.05**	**3.89**
180	WINDOW SILL	WOOD	C	337	INTACT	WHITE	THIRD	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	0.78	2.2
181	**WINDOW TRIM**	**WOOD**	**C**	**337**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.3**	**0.15**	**0.3**	**0.15**	**< LOD**	**0.75**	**4.4**
182	RADIATOR	METAL	C	337	INTACT	SILVER	THIRD	INTERIOR	< LOD	0.35	< LOD	0.35	< LOD	2.58	4.59
183	**WALL**	**PLASTER**	**D**	**337**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.21**	**0.11**	**0.21**	**0.11**	**< LOD**	**1.2**	**3.69**
184	**WALL**	**PLASTER**	**C**	**341**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.6**	**0.2**	**0.6**	**0.2**	**< LOD**	**1.2**	**5.93**
185	**WALL**	**PLASTER**	**D**	**341**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.3**	**0.14**	**0.3**	**0.14**	**< LOD**	**1.16**	**4.47**
186	**WALL**	**PLASTER**	**A**	**341**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**0.8**	**0.1**	**0.8**	**0.1**	**0.8**	**0.3**	**6.53**
187	CEILING	PLASTER	SOUTH	SOUTH HALLWAY	INTACT	YELLOW	THIRD	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	1.1	2.69
188	WINDOW	WOOD		SW STAIRWELL	PEELING	WHITE	THIRD	INTERIOR	< LOD	0.16	< LOD	0.16	< LOD	1.35	2.46
189	WINDOW SILL	WOOD		SW STAIRWELL	PEELING	WHITE	THIRD	INTERIOR	< LOD	0.06	< LOD	0.06	< LOD	1.5	1.7
190	WINDOW TRIM	WOOD		SW STAIRWELL	PEELING	WHITE	THIRD	INTERIOR	< LOD	0.34	< LOD	0.34	< LOD	1.65	4.24
191	**WALL**	**PLASTER**	**NORTH**	**SW STAIRWELL**	**INTACT**	**WHITE**	**THIRD**	**INTERIOR**	**1.5**	**0.4**	**1.5**	**0.4**	**< LOD**	**1.35**	**4.12**
192	**CALIBRATION CHECK**					**ORANGE**			**0.9**	**0.1**	**0.9**	**0.1**	**0.8**	**0.4**	**1.07**
193	WALL	PLASTER	A	201	INTACT	MAUVE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.05	1
194	**WALL**	**PLASTER**	**B**	**201**	**INTACT**	**MAUVE**	**SECOND**	**INTERIOR**	**0.8**	**0.2**	**0.8**	**0.2**	**0.8**	**0.4**	**5.29**
195	WINDOW SILL	WOOD	B	201	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.2	< LOD	0.2	< LOD	1.65	3.46
196	WINDOW	WOOD	B	201	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.18	< LOD	0.18	< LOD	1.5	2.45
197	WALL	DRYWALL	C	201	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.04	< LOD	0.04	< LOD	1.5	2.05
198	WALL	PLASTER	C	201-a	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.75	1
199	WALL	DRYWALL	C	201-b	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.49	1
200	**WINDOW**	**WOOD**	**NORTH**	**HALL**	**INTACT**	**BLACK**	**SECOND**	**EXTERIOR**	**13.5**	**3.6**	**9.5**	**2.9**	**13.5**	**3.6**	**2.8**
201	**WINDOW SILL**	**WOOD**	**NORTH**	**HALL**	**INTACT**	**BLACK**	**SECOND**	**EXTERIOR**	**15.1**	**4.1**	**10.1**	**3.7**	**15.1**	**4.1**	**2.53**
202	**WINDOW SILL**	**WOOD**	**NORTH**	**HALL**	**INTACT**	**VARNISH**	**SECOND**	**INTERIOR**	**0.04**	**0.03**	**0.04**	**0.03**	**< LOD**	**0.71**	**1.02**
203	**WALL**	**PLASTER**	**NORTH**	**HALL**	**INTACT**	**BROWN**	**SECOND**	**INTERIOR**	**16.6**	**2.1**	**< LOD**	**176.7**	**16.6**	**2.1**	**6.64**
204	WALL	WOOD	A	202	INTACT	VARNISH	SECOND	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.47	1
205	HANDRAIL	WOOD		HALL	INTACT	VARNISH	SECOND	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.5	1.8
206	CORNER POST	METAL		HALL	INTACT	BLACK	SECOND	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	2.48	1
207	**WALL**	**PLASTER**	**C**	**204**	**INTACT**	**WHITE**	**SECOND**	**INTERIOR**	**6.2**	**2.4**	**< LOD**	**1.35**	**6.2**	**2.4**	**10**
208	WALL	DRYWALL	A	205-i	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.51	1
209	WALL	DRYWALL	C	205-i	INTACT	WHITE	SECOND	INTERIOR	LOD	1.15	0.1	0.2	LOD	1.15	3.92

Table II
Concentrations of Lead in Surfaces
University of Idaho-Administration Building
Moscow, Idaho
December 28-29, 2011

Reading No	Componenet	Substrate	Side	Room	Condition	Color	Floor	Area	PbC	PbC Error	PbL	PbL Error	PbK	PbK Error	Depth Index
210	WALL	DRYWALL	C	205-i	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.75	0.3	0.08	< LOD	0.75	3.32
211	WALL	PLASTER	C	205-d	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.75	0.3	0.11	< LOD	0.75	4.88
212	WALL	PLASTER	D	205	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	0.9	2.57
213	WALL	WOOD	D	205	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.03	< LOD	0.03	< LOD	1.48	1
214	WALL	WOOD	D	205	INTACT	WHITE	SECOND	INTERIOR	< LOD	0.07	< LOD	0.07	< LOD	1.17	1.35
215	**WALL**	**PLASTER**	**A**	**208**	**INTACT**	**WHITE**	**SECOND**	**INTERIOR**	**0.8**	**0.1**	**0.8**	**0.1**	**1**	**0.3**	**4.75**

Photographic Log

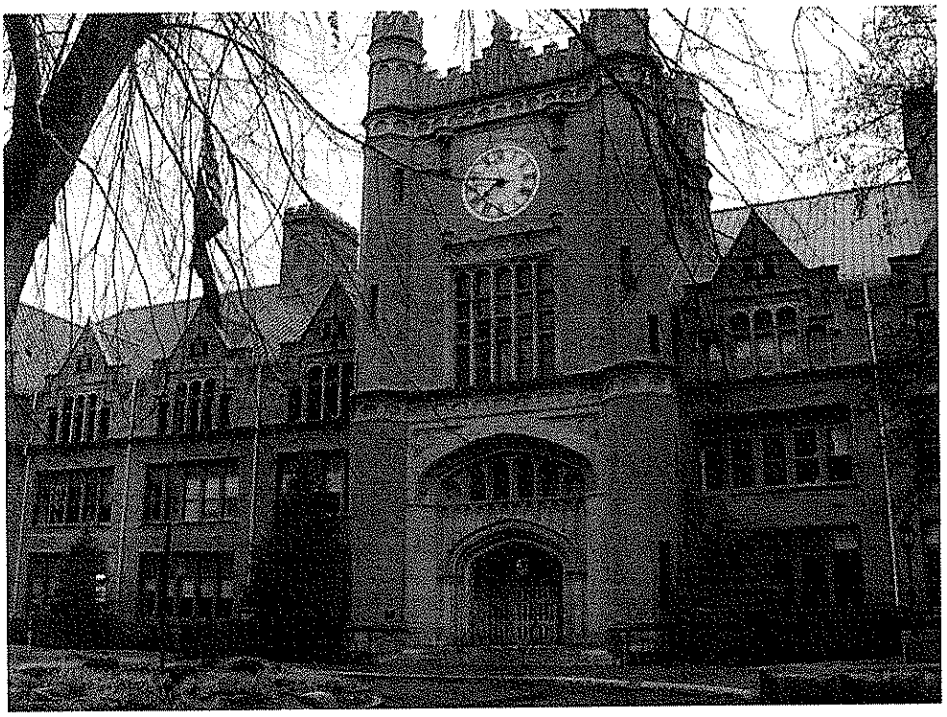

Photo 1: University of Idaho, Administration Building.

Photo 2: This picture depicts a typical window. The exterior is painted with lead-based paint the interior is coated with varnish and does not contain lead. The exterior window frame caulking contains regulated amounts of asbestos.

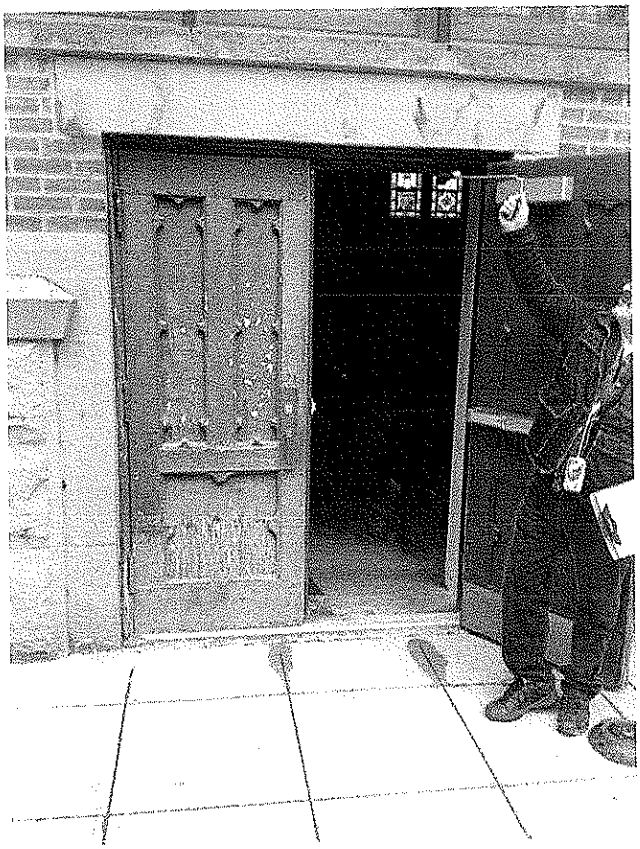

Photo 3: Auditorium south entry doors.

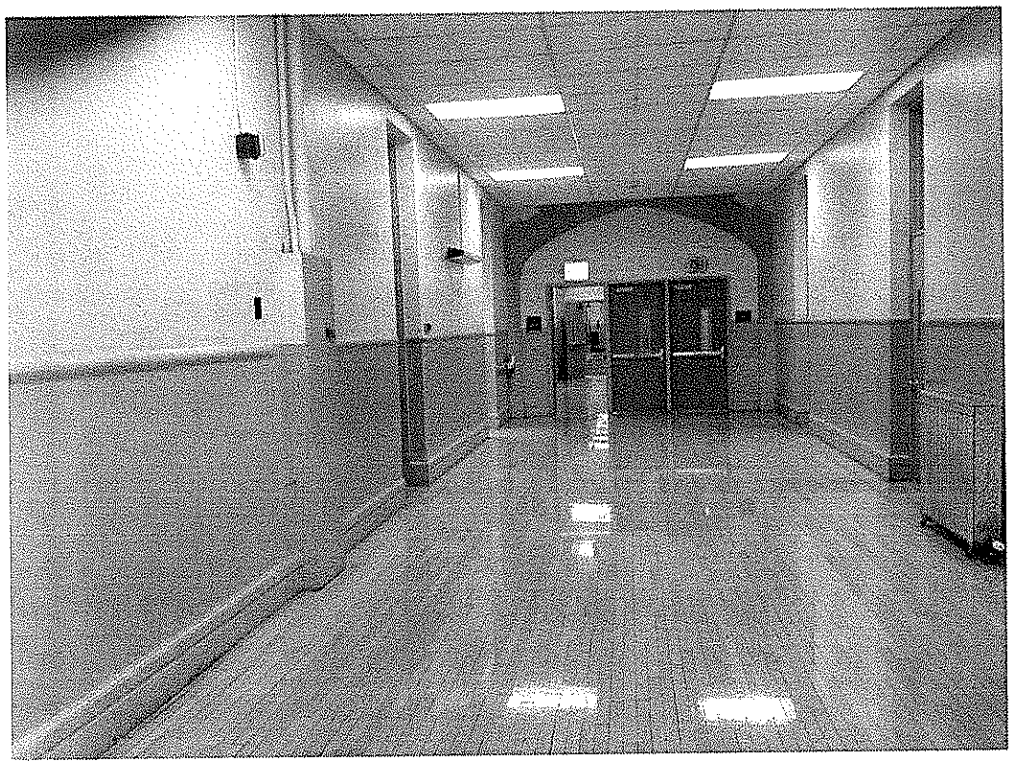

Photo 4: Third floor hallway. The plaster walls shown in this photo are typical of the original 1909 area of the building. The wall area below the wainscot contained lead paint. No asbestos was detected in the wall plaster and 2' x 4' suspended ceiling tiles.

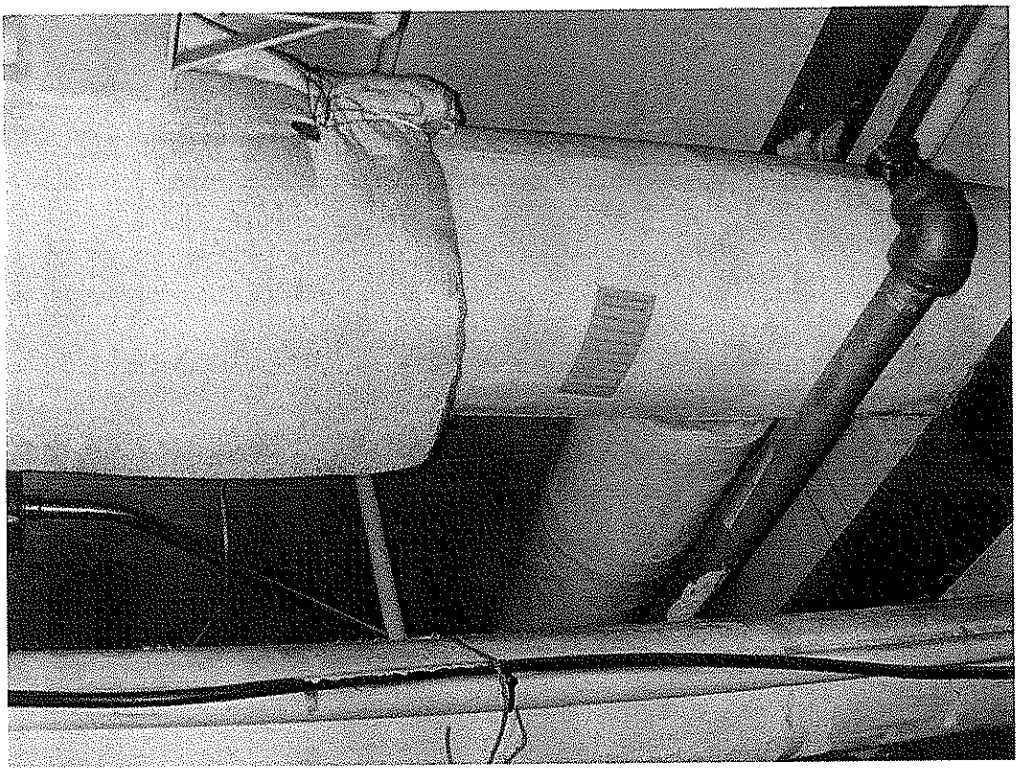

Photo 5: Asbestos containing thermal system insulation pipe lagging, mudded elbows and mudded hangers in basement hallways, offices, storage rooms and tunnels. The painted concrete ceiling contained lead paint.

Photo 6: No asbestos was detected in the 12"x 12" glued-on ceiling or wall tiles.

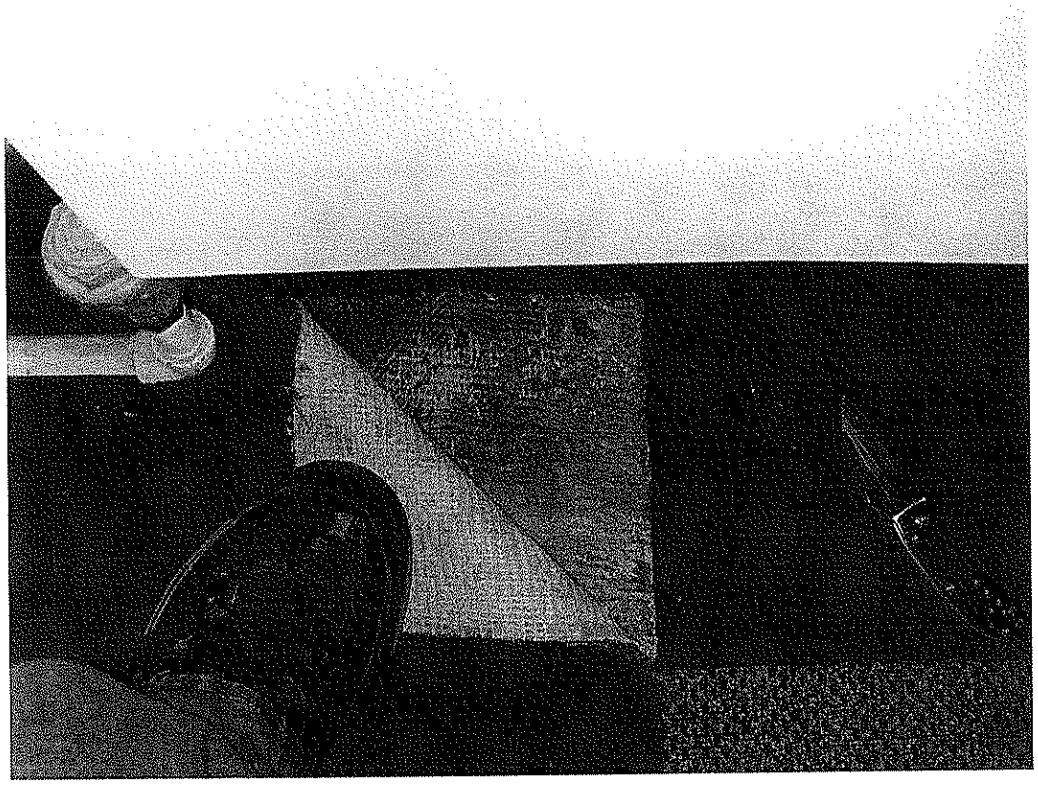

Photo 7: Asbestos containing sheet vinyl flooring, floor tile and mastic underneath the carpet shown in this photo are typical.

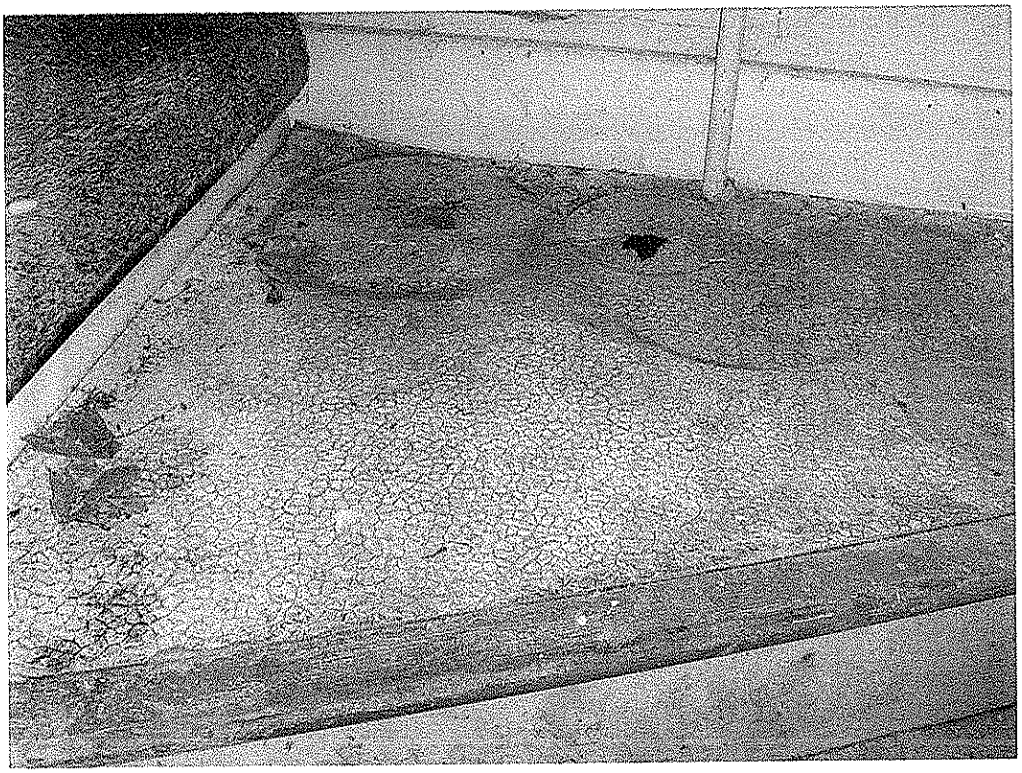

Photo 8: Asbestos containing sheet vinyl flooring located in basement rooms 004-A and B.

Laboratory Report

Sample#	Results	Building	Floor	Room	Location	Material	Comments
B930346	NEG	ADMINISTRATION	1ST FLOOR	RM 123	W WALL	BLACK COVE BASE	
B930347	NEG	ADMINISTRATION	1ST FLOOR	RM 123	W WALL	COVE BASE MASTIC	
B930348	NEG	ADMINISTRATION	1ST FLOOR	RM 123	SE CORNER OF RM	BLACK COVE BASE W/MASTIC	
B930349	NEG	ADMINISTRATION	1ST FLOOR	RM 117	CEILING NEAR W WALL	2X2 CEILING TILE W/2 HOLE SIZES	
B890270	NEG	ADMINISTRATION	1ST FLOOR	RM 127	RECEPTION	2X2 CEILINGTILE WHITE W/PIT AND PINHOLES	SAME IN 127A C; 101 101G
B890051	2% CHRY	ADMINISTRATION	1ST FLOOR	RM 119	FLOOR	9X9 FLOORTILE TAN BROWN & BEIGE STREAKS	
B87071	NEG	ADMINISTRATION	1ST FLOOR	RM 130	ALONG N WALL	FLOORTILE	
B930337	1-5% CHRY	ADMINISTRATION	1ST FLOOR	RM 117	NE CORNER OF RM	9X9 FLOOR TILE GRAY W/STREAKS	CREME & ORANGE STREAKS
B930338	NEG	ADMINISTRATION	1ST FLOOR	RM 117	NE CORNER OF RM	FLOOR TILE MASTIC & TARPAPER	FROM 9X9 TILE
B930339	NEG	ADMINISTRATION	1ST FLOOR	RM 117	NE CORNER OF RM	ORANGE COVE BASE W/MASTIC	RMS 117 & 121 ARE HOMOGENEOUS
B930340	1-5% CHRY	ADMINISTRATION	1ST FLOOR	RM 121	SW CORNER BEHIND DOOR	9X9 FLOOR TILE GRAY W/STREAKS	CREME & ORANGE STREAKS
B930341	NEG	ADMINISTRATION	1ST FLOOR	RM 121	SW CORNER OF RM BEHIND DOOR	FLOOR TILE MASTIC & TARPAPER	FOR 9X9 TILE
B930342	NEG	ADMINISTRATION	1ST FLOOR	RM 121	SW CORNER OF RM BEHIND DOOR	ORANGE COVE BASE	RM 121 & 117 ARE HOMOGENEOUS
B930343	NEG	ADMINISTRATION	1ST FLOOR	RM 121	SW CORNER OF RM	COVE BASE MASTIC	
B930344	1-5% CHRY	ADMINISTRATION	1ST FLOOR	RM 123	SE CORNER OF RM	9X9 FLOOR TILE TAN W/STREAKS	BROWN & CREME STREAKS W/MASTIC
B930345	NEG	ADMINISTRATION	1ST FLOOR	RM 123	SE CORNER OF RM	FLOOR TILE MASTIC & TARPAPER	FOR 9X9 TILE
B87076	NEG	ADMINISTRATION	1ST FLOOR	RM 130	CEILING ALONG S WALL	CEILINGTILE	
B9000056	NEG	ADMINISTRATION	1ST FLOOR	RM 119	UNDERNEATH FLOORTILE	BLACK TAR PAPER	THROUGHOUT ROOM
B890269	NEG	ADMINISTRATION	1ST FLOOR	RM 129	W ENTRANCE	2X2 CEILINGTILE WHITE PINHOLES PITS	SAME AS ROOMS W OF 125 IN S WING
B890268	NEG	ADMINISTRATION	1ST FLOOR	RM 141	NW CORNER	2X2 CEILINGTILE WHITE PINHOLES PITS	SAME AS ROOMS W OF 125 IN S WING
B930350	NEG	ADMINISTRATION	1ST FLOOR	RM 121	CEILING UNDER LIGHT FIXTURE BY DOOR	2X2 CEILING TILE W/2 HOLE SIZES	
B87154	60% CHRY 10% AMOS	ADMINISTRATION	1ST FLOOR	RM 128	N WALL VENT PIPE	PIPE INSULATION	
B87155	5-10% CHRY	ADMINISTRATION	1ST FLOOR	RM 128	N WALL	PIPE ELBOW	
B900392	2% CHRY	ADMINISTRATION	1ST FLOOR	RM 117	HALLWAY OUTSIDE 117-123	12X12 FLOORTILE BROWN MOTTLED	
B87078	NEG	ADMINISTRATION	1ST FLOOR	RM 130	WALL	WALLCORE	
B87085	NEG	ADMINISTRATION	1ST FLOOR	RM 130	WALL	WALLCORE	
B920064	NEG	ADMINISTRATION	1ST FLOOR	RM 118-A	W WALL OVER WINDOW	MASONITE TYPE BOARD MATERIAL	
B920101	NEG	ADMINISTRATION	1ST FLOOR	RM 116	FLOOR UNDER CARPET WOMEN'S LOUNGE	LINOLEUM MASTIC	
B920529	5-10% CHRY	ADMINISTRATION	1ST FLOOR	RM 129	SUBFLOOR UNDER FLOATING FLOOR	9X9 FLOORTILE TAN W/DARK & LITE STREAKS	TILE 5-10% CHRY MASTIC 5-10% CHRY
B86167	NEG	ADMINISTRATION	1ST FLOOR	RM 112	CEILING	CEILINGTILE	
B87074	NEG	ADMINISTRATION	1ST FLOOR	RM 130	CEILING	CEILINGTILE	
B87075	NEG	ADMINISTRATION	1ST FLOOR	RM 130	CEILING	CEILINGTILE	
B87073	NEG	ADMINISTRATION	1ST FLOOR	RM 130	ALONG S WALL	FLOORTILE	
B86166	NEG	ADMINISTRATION	1ST FLOOR	RM 101-E	CEILING	CEILINGTILE	
B86168	NEG	ADMINISTRATION	1ST FLOOR	RM 105	CEILING	CEILINGTILE	
B920056	1-5% CHRY	ADMINISTRATION	1ST FLOOR	RM 129	FLOOR	12X12 FLOORTILE WHITE W/GREY STREAKS	
B900265	2% CHRY	ADMINISTRATION	1ST FLOOR	RM 101	OUTSIDE 101G	FLOORTILE 12X12 LITE GREY TAN BROWN	
B920059	1-5% CHRY 1-5% AMOS	ADMINISTRATION	1ST FLOOR	RM 118	SUSPENDED CEILING	2X4 CEILING TILE SQUIGGLES & PINHOLES	
B920060	NEG	ADMINISTRATION	1ST FLOOR	RM 118	S WALL	WALL PLASTER	
B87072	NEG	ADMINISTRATION	1ST FLOOR	RM 130	ALONG W WALL	FLOORTILE	
B920062	NEG	ADMINISTRATION	1ST FLOOR	RM 118-A	BASE OF WALLS	COVE BASE MASTIC	
B920063	10-20% CHRY	ADMINISTRATION	1ST FLOOR	RM 118-A	FLOOR	LINOLEUM YELLOW-GREEN W/ROCK PATTERN	
B86170	NEG	ADMINISTRATION	1ST FLOOR	RM 107-C	CEILING	CEILINGTILE	
B86145	NEG	ADMINISTRATION	1ST FLOOR	RM 102	NEW CEILING	CEILINGTILE	
B920058	NEG	ADMINISTRATION	1ST FLOOR	RM 118	FLOORING UNDER CARPET	BROWN LINOLEUM	
B87084	NEG	ADMINISTRATION	1ST FLOOR	RM 130	WALL	WALLCORE	
B920061	NEG	ADMINISTRATION	1ST FLOOR	RM 118-A	BASE OF WALLS	BLACK COVE BASE	
B85035	15% CHRY 10% AMOS	ADMINISTRATION	2ND FLOOR	RM 205	CEILING	CEILINGTILE	ORIG NUM=B85018 ALSO IN RM 207
B85059	NEG	ADMINISTRATION	2ND FLOOR	RM 209-H	WALL	WALL	ORIG SAMPLE NUM=B85042
B85058	NEG	ADMINISTRATION	2ND FLOOR	RM 209-G	WALL	WALL	ORIG SAMPLE NUM=B85041
B890213	NEG	ADMINISTRATION	2ND FLOOR	RM 201	MIDDLE OF ROOM	2X2 CEILINGTILE DEEP PITS & PINHOLES	
B940183	NEG	ADMINISTRATION	2ND FLOOR	RM 212	CEILING	2X2 TILE W/PENCIL HOLE PATTERN	SUSPENDED NO MASTIC WOMEN'S RM LOUNGE
B940182	NEG	ADMINISTRATION	2ND FLOOR	RM 212	CEILING	2X2 TILE W/PENCIL HOLE PATTERN	SUSPENDED NO MASTIC WOMEN'S RM LOUNGE
B910316	NEG	ADMINISTRATION	2ND FLOOR	RM 202	WEST WALL NEAR SW CORNER	WALL PLASTER MATERIAL	
B910317	NEG	ADMINISTRATION	2ND FLOOR	RM 202	MIDDLE OF WEST WALL	WALL PLASTER	

Sample#	Results	Building	Floor	Room	Location	Material	Comments
B910049	5% CHRY	ADMINISTRATION	2ND FLOOR	RM 209-D	E WALL IN FRONT OF DESK UNDER CHAIR	9X9 FLOOR TILE, TAN W/LT & DR BROWN	
B910351	NEG	ADMINISTRATION	2ND FLOOR	RM 201	FLOOR UNDERNEATH CARPET	LINOLEUM BROWN W/MASTIC	
B910352	NEG	ADMINISTRATION	2ND FLOOR	RM 201	E WALL	SHEETROCK	SOUTH WALL SAME AS EAST WALL
B85047	NEG	ADMINISTRATION	2ND FLOOR	RM 209-B	WALL	WALL	ORIG SAMPLE NUM=B85030
B85050	NEG	ADMINISTRATION	2ND FLOOR	RM 209-C	WALL	WALL	ORIG SAMPLE NUM=B85033
B85051	NEG	ADMINISTRATION	2ND FLOOR	RM 209-B	WALL	WALL	ORIG SAMPLE NUM=B85034
C87099	NEG	ADMINISTRATION	2ND FLOOR	HALLWAY	OUTSIDE RM 211B	2X4 CEILINGTILE SQUIGGLES AND PITS	
B890210	5% AMOS	ADMINISTRATION	2ND FLOOR	RM 203	CENTER OF S WALL	2X4 CEILINGTILE WHITE SQUIGGLES	SAME IN RM 206 *TILE REMOVED FEB. 1992*
B910350	NEG	ADMINISTRATION	2ND FLOOR	RM 203	E WALL UNDER CENTER WINDOW	TROWELED ON WALL PLASTER	
B950065	1-5% CHRY	ADMINISTRATION	2ND FLOOR	RM 225	NEAR N WALL	LINOLEUM MASTIC	
B950066	15-20% CHRY	ADMINISTRATION	2ND FLOOR	RM 225	NEAR N WALL	LINOLEUM & CARPET MASTIC	LINOLEUM MASTIC POS CARPET MASTIC NEG
B940184	NEG	ADMINISTRATION	2ND FLOOR	RM 212	N WALL	WALL PLASTER MATERIAL	WOMEN'S RM LOUNGE
B890212	NEG	ADMINISTRATION	2ND FLOOR	RM 201	MIDDLE OF ROOM	2X2 CEILINGTILE DEEP PITS & PINHOLES	
B910050	NEG	ADMINISTRATION	2ND FLOOR	RM 209-D	E WALL IN FRONT OF DESK UNDER CHAIR	FLOORTILE MASTIC & FIBEROUS UNDERLAYMENT	
B86143	NEG	ADMINISTRATION	2ND FLOOR	RM 227	CEILING	CEILINGTILE	
B86139	NEG	ADMINISTRATION	2ND FLOOR	HALLWAY	CEILING	CEILINGTILE	
B950064	1-5% CHRY	ADMINISTRATION	2ND FLOOR	RM 225	NEAR S WALL	LINOLEUM & CARPET MASTIC	LINOLEUM MASTIC POS CARPET MASTIC NEG
B910343	NEG	ADMINISTRATION	2ND FLOOR	RM 203	UNDER CARPET BETWEEN STEAM PIPES	LINOLEUM BROWN WITH MASTIC	
B910344	NEG	ADMINISTRATION	2ND FLOOR	RM 203	BASE OF WALLS	BROWN COVE BASE HARD STYLE	
B910345	NEG	ADMINISTRATION	2ND FLOOR	RM 203	N WALL BEHIND TELEPHONE JUNCTION BOX	SHEETROCK WALLBOARD	
B910346	NEG	ADMINISTRATION	2ND FLOOR	RM 203	S WALL BEHIND ELECTRICAL OUTLET	WALL BOARD	
B910347	NEG	ADMINISTRATION	2ND FLOOR	RM 203	S WALL	WALL COVERING	
B910348	NEG	ADMINISTRATION	2ND FLOOR	RM 203	W WALL BEHIND LIGHT SWITCH PLATE	WALL BOARD	
B910349	NEG	ADMINISTRATION	2ND FLOOR	RM 203	SUSPENDED CEILING	2X4 CEILINGTILE W/SQUIGGLES & PINHOLES	
B920014	1-5% CHRY	ADMINISTRATION	2ND FLOOR	RM 203	CEILING	CEILING TILE SQUIGGLES AND PINHOLES	CEILING TILE REMOVED FEB 1992
B920015	NEG	ADMINISTRATION	2ND FLOOR	RM 203	N WALL BEHIND TELEPHONE JUNCTION BOX	SHEETROCK	
B86071	95% CHRY	ADMINISTRATION	2ND FLOOR	RM 204	LINER ON STEAM PIPE	PIPE INSULATION LINER	
B910353	NEG	ADMINISTRATION	2ND FLOOR	RM 201	W WALL UNDER BOTTOM SHELF	TROWELED ON WALL PLASTER	
B85052	NEG	ADMINISTRATION	2ND FLOOR	RM 209-D	CEILING	CEILINGTILE	ORIG SAMPLE NUM = B85035
B86140	NEG	ADMINISTRATION	2ND FLOOR	RM 223	CEILING	CEILINGTILE	
B910356	NEG	ADMINISTRATION	2ND FLOOR	RM 201-A	S WALL BEHIND TELEPHONE BOX	SHEETROCK	
B910357	NEG	ADMINISTRATION	2ND FLOOR	RM 201-A	N WALL	WALL PLASTER	NORTH & EAST WALLS ARE THE SAME
B910318	NEG	ADMINISTRATION	2ND FLOOR	RM 202	WEST WALL NEAR WINDOW	WALL PLASTER	
B85043	NEG	ADMINISTRATION	2ND FLOOR	RM 211	WALL	WALL	ORIG SAMPLE NUM=B85026
B85060	NEG	ADMINISTRATION	2ND FLOOR	RM 213	WALL	WALL	ORIG SAMPLE NUM=B85043
B87522	NEG	ADMINISTRATION	2ND FLOOR	RM 211-A	CEILING	2X2 CEILINGTILE IRREG DOT PATTERN	
B890266	NEG	ADMINISTRATION	2ND FLOOR	RM 209	RECEPTION	2X2 CEILINGTILE SQUIGGLES W/PINHOLES	SIMILAR TO 217 209D
B890263	NEG	ADMINISTRATION	2ND FLOOR	RM 211	RECEPTION NW CORNER	2X2 WHITE CEILINGTILE PINHOLE & PITS	SAME AS IN 211A 211B
B85046	NEG	ADMINISTRATION	2ND FLOOR	RM 209-A	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85029
B85063	NEG	ADMINISTRATION	2ND FLOOR	RM 215	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85046
B85044	NEG	ADMINISTRATION	2ND FLOOR	RM 211	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85027
B85049	NEG	ADMINISTRATION	2ND FLOOR	RM 209-C	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85032
B920016	NEG	ADMINISTRATION	2ND FLOOR	RM 201	S WALL UNDER BOTTOM SHELF	SHEETROCK	
B950161	NEG	ADMINISTRATION	2ND FLOOR	HALLWAY	NEAR BUSINESS DEAN'S OFFICE	COVE BASE MASTIC	
B940185	NEG	ADMINISTRATION	2ND FLOOR	RM 212	W WALL	WALL PLASTER MATERIAL	WOMEN'S RM LOUNGE
B890211	NEG	ADMINISTRATION	2ND FLOOR	RM 205-E	NEXT TO PIPE BY WINDOW	2X2 CEILINGTILE DEEP SQUIGGLES &	
B85056	NEG	ADMINISTRATION	2ND FLOOR	RM 209-F	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85039
B85057	NEG	ADMINISTRATION	2ND FLOOR	RM 209-G	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85040
B85062	NEG	ADMINISTRATION	2ND FLOOR	RM 215	WALL	WALL	ORIG SAMPLE NUM=B85045
B930363	NEG	ADMINISTRATION	2ND FLOOR	RM 225	W WALL	COVE BASE MASTIC	
B85054	NEG	ADMINISTRATION	2ND FLOOR	RM 209-E	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85037
B85061	NEG	ADMINISTRATION	2ND FLOOR	RM 213	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85044
B85048	NEG	ADMINISTRATION	2ND FLOOR	RM 209-B	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85031
B85065	NEG	ADMINISTRATION	2ND FLOOR	RM 217	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM=B85048
B890317	5% CHRY	ADMINISTRATION	2ND FLOOR	RM 212	LOUNGE AREA NEXT TO WINDOW	9X9 FLOORTILE TAN W/BROWN STREAKS	MASTIC

Sample#	Results	Building	Floor	Room	Location	Material	Comments
B950063	1-5% CHRY	ADMINISTRATION	2ND FLOOR	RM 225	NEAR S WALL	LINOLEUM MASTIC	
B930362	NEG	ADMINISTRATION	2ND FLOOR	RM 225	NE CORNER OF RM	CARPET MASTIC	
B910355	NEG	ADMINISTRATION	2ND FLOOR	RM 201-A	FLOOR UNDER CARPET	LINOLEUM BROWN W/MASTIC	
B930364	NEG	ADMINISTRATION	2ND FLOOR	RM 225	NE CORNER	COVE BASE MASTIC	
B920017	NEG	ADMINISTRATION	2ND FLOOR	RM 201-A	S WALL BEHIND TELEPHONE JACK	SHEETROCK	
B910354	NEG	ADMINISTRATION	2ND FLOOR	RM 201-A	BY DOOR UNDER CARPET	PLASTER TYPE FILL-IN MATERIAL	
B890264	NEG	ADMINISTRATION	2ND FLOOR	RM 213	RECEPTION NW CORNER	2X2 CEILINGTILE WHITE SQUIGGLES PINHOLES	SAME AS 213ABC AND 215
B85064	NEG	ADMINISTRATION	2ND FLOOR	RM 217	WALL	WALL	ORIG SAMPLE NUM=B85047
B85045	NEG	ADMINISTRATION	2ND FLOOR	RM 209-A	WALL	WALL	ORIG SAMPLE NUM=B85028
B85042	NEG	ADMINISTRATION	2ND FLOOR	HALLWAY	CEILING	CEILING MATERIAL	ORIG SAMPLE NUM = B85025
B85055	NEG	ADMINISTRATION	2ND FLOOR	RM 209-F	WALL	WALL	ORIG SAMPLE NUM=B85038
B950062	NEG	ADMINISTRATION	2ND FLOOR	RM 210	MIDDLE OF RM N END	CARPET MASTIC	
B890265	NEG	ADMINISTRATION	2ND FLOOR	RM 217	NW CORNER	CEILINGTILE	SAME AS 221 225
B85053	NEG	ADMINISTRATION	2ND FLOOR	RM 209-E	WALL	WALL	ORIG SAMPLE NUM=B85036
B950061	NEG	ADMINISTRATION	2ND FLOOR	RM 210	MIDDLE OF RM S END	CARPET MASTIC	
B930360	NEG	ADMINISTRATION	2ND FLOOR	RM 225	W WALL UNDER INSTRUCTOR'S PLATFORM	9X9 FLOOR TILE BROWN W/STREAKS	BLACK & CREME STREAKS TILE/CARPET MASTIC
B930361	NEG	ADMINISTRATION	2ND FLOOR	RM 225	NE CORNER OF RM UNDER CARPET	9X9 FLOOR TILE BROWN W/STREAKS	BLACK & CREME STREAKS W/TILE MASTIC
B950162	NEG	ADMINISTRATION	2ND FLOOR	HALLWAY	W END OF HALLWAY S SIDE	COVE BASE MASTIC	
B950163	10% CHRY	ADMINISTRATION	2ND FLOOR	HALLWAY	W END OF HALLWAY	FLOOR TILE MASTIC	MASTIC FOR 9X9 TILE
B950164	10% CHRY 5% CHRY	ADMINISTRATION	2ND FLOOR	HALLWAY	W END OF HALL UNDER CARPET	9X9 TILE W/CARPET & TILE MASTIC	CARPET MASTIC NEG - TILE MASTIC POS
B950165	10% CHRY 5% CHRY	ADMINISTRATION	2ND FLOOR	HALLWAY	W END OF HALLWAY	9X9 TILE W/CARPET & TILE MASTIC	CARPET MASTIC NEG - TILE MASTIC POS
B890186	NEG	ADMINISTRATION	3RD FLOOR	RM 301	NW CORNER	12X12 CEILINGTILE WHITE SQUIGGLES & FLOORTILE MASTIC	
B910044	2% CHRY	ADMINISTRATION	3RD FLOOR	RM 305-C	UNDER RADIATOR	FLOORTILE MASTIC	
B910045	2% CHRY	ADMINISTRATION	3RD FLOOR	RM 305-C	UNDER RADIATOR	FLOORTILE, WHITE W/LITE GREEN STREAKS	ASB IN MASTIC ONLY
B910046	2% CHRY	ADMINISTRATION	3RD FLOOR	RM 305-C	UNDER RADIATOR	2X4 CEILINGTILE	
B880028	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 336-B	N WALL ABOVE WINDOW	2X4 CEILINGTILE	
B87401	2-3% CHRY 3-5% AMOS	ADMINISTRATION	3RD FLOOR	RM 319	NE CORNER OF ROOM	2X4 CEILINGTILE	
B87403	2-3% CHRY 3-5% AMOS	ADMINISTRATION	3RD FLOOR	RM 327	NW CORNER OF ROOM	2X4 CEILINGTILE	
B880027	NEG	ADMINISTRATION	3RD FLOOR	RM 338-B	N WALL CEILING BY PIPE	2X4 CEILINGTILE SQUIGGLES & PINHOLES	
B940061	NEG	ADMINISTRATION	3RD FLOOR	RM 328	FLOOR	LINOLEUM TAN W/SWIRLS	LITE & DARK BROWN SWIRLS MASTIC IS NEG
B890187	NEG	ADMINISTRATION	3RD FLOOR	RM 301	NW CORNER	12X12 CEILINGTILE WHITE	
B87378	NEG	ADMINISTRATION	3RD FLOOR	RM 341	FLOOR	9X9 FLOORTILE TAN	
B86154	NEG	ADMINISTRATION	3RD FLOOR	RM 318	TILE ON WALL	WALL TILE	
B86144	NEG	ADMINISTRATION	3RD FLOOR	RM 341	CEILING	CEILINGTILE	
B87377	1-2% CHRY	ADMINISTRATION	3RD FLOOR	WOMENS RM	NE CORNER IN FRONT OF DOOR	9X9 FLOORTILE LITE BROWN	
B890185	NEG	ADMINISTRATION	3RD FLOOR	RM 301	NW CORNER	12X12 CEILINGTILE WHITE PITS W/PINHOLES	
B87402	1-2% CHRY 3-5% AMOS	ADMINISTRATION	3RD FLOOR	RM 323	N END OVER DOOR	2X4 CEILINGTILE	
B890189	NEG	ADMINISTRATION	3RD FLOOR	RM 301	NW CORNER	MASTIC FOR CEILINGTILE	
B86138	2-6% CHRY	ADMINISTRATION	3RD FLOOR	RM 314	CEILING	CEILINGTILE	
B86153	NEG	ADMINISTRATION	3RD FLOOR	RM 320	WALL	WALL TILE	
B890262	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 314	NEXT TO ENTRANCE	2X4 CEILINGTILE WHITE PINHOLES	SAME AS IN 312318
B890149	NEG	ADMINISTRATION	3RD FLOOR	RM 314-A	CENTER OF W SIDE	2X4 CEILINGTILE W/SQUIGGLES	
B890232	2% AMOS	ADMINISTRATION	3RD FLOOR	RM 338	NORTH WALL NEXT TO VENTILATION	2X4 CEILINGTILE WHITE SQUIGGLES &	
B890260	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 300-B	OUTSIDE OF 326	2X4 CEILINGTILE WHITE PINHOLES &	
B87231	10-15% CHRY 10% AMOS	ADMINISTRATION	3RD FLOOR	RM 314	NE CORNER	2X4 CEILINGTILE	
B87227	3-5% CHRY 3-5% AMOS	ADMINISTRATION	3RD FLOOR	RM 306	N WALL E WINDOWS	2X4 CEILINGTILE	
B87233	NEG	ADMINISTRATION	3RD FLOOR	RM 320	NW CORNER	WALL TILE	
B880026	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 338	NE CORNER BY 338C	2X4 CEILINGTILE SQUIGGLES & PINHOLES	
B940060	NEG	ADMINISTRATION	3RD FLOOR	RM 332	FLOOR	9X9 FLOOR TILE CREME W/BROWN STREAKS	MASTIC IS NEG
B87404	NEG	ADMINISTRATION	3RD FLOOR	RM 331	SW CORNER	12X12 CEILINGTILE SQUIGGLES & PINHOLES	
B87405	NEG	ADMINISTRATION	3RD FLOOR	RM 337	N WALL OVER DOOR	12X12 CEILINGTILE SQUIGGLES & PINHOLES	
B86141	NEG	ADMINISTRATION	3RD FLOOR	RM 331	CEILING	CEILINGTILE	
B83022	NEG	ADMINISTRATION	3RD FLOOR	RM 315	UNDER HEAT REGISTER		
B87409	1-2% CHRY 3-5% AMOS	ADMINISTRATION	3RD FLOOR	HALLWAY	BETWEEN RM 340 & 342	2X4 CEILINGTILE	
B890255	5% AMOS	ADMINISTRATION	3RD FLOOR	HALLWAY	OUTSIDE OF 336	2X4 CEILINGTILE WHITE W/SQUIGGLES	

Sample#	Results	Building	Floor	Room	Location	Material	Comments
B890257	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 317	NW CORNER OF ROOM	2X4 WHITE CEILINGTILE PINHOLES SQUIGGLES	SAME AS RM 336334332
B890256	5% AMOS	ADMINISTRATION	3RD FLOOR	HALLWAY	OUTSIDE 332	2X4 WHITE CEILINGTILE W/SQUIGGLES	
B940189	NEG	ADMINISTRATION	3RD FLOOR	WOMENS RM	CEILING 1X1 PEG BOARD TILE	CEILING TILE MASTIC	N WOMEN'S REST RM
B940190	NEG	ADMINISTRATION	3RD FLOOR	WOMEN'S RM	CEILING 1X1 PEG BOARD TILE	CEILING TILE MASTIC	N WOMEN'S REST RM
B940191	NEG	ADMINISTRATION	3RD FLOOR	WOMEN'S RM	CEILING	1X1 CEILING TILE PEG BOARD TILE	N WOMEN'S REST RM
B87407	NEG	ADMINISTRATION	3RD FLOOR	RM 341	BY DOOR TO 339	9X9 FLOORTILE	
B940193	1-5% CHRY	ADMINISTRATION	3RD FLOOR	WOMEN'S RM	FLOOR TILE	9X9 TILE GREY W/CREME BROWN & ORANGE ST	TILE & MASTIC POSITIVE N WOMEN'S RM
B890261	NEG	ADMINISTRATION	3RD FLOOR	RM 308	SE CORNER	2X4 CEILINGTILE PINHOLES & PITS	SAME AS 308&310&312A312B
B940059	1% CHRY	ADMINISTRATION	3RD FLOOR	RM 334	FLOOR	9X9 FLOOR TILE CREME W/BROWN STREAKS	MASTIC IS POSITIVE
B940142	NEG	ADMINISTRATION	3RD FLOOR	RM 314-A	CEILING	CEILINGTILE	
B87228	NEG	ADMINISTRATION	3RD FLOOR	RM 310-A	N WALL MIDDLE WINDOW	2X4 CEILINGTILE	
B87229	3-5% CHRY 15% AMOS	ADMINISTRATION	3RD FLOOR	RM 312	SW CORNER	2X4 CEILINGTILE	
B87376	NEG	ADMINISTRATION	3RD FLOOR	RM 310-A	IN FRONT OF DOOR	12X12 FLOORTILE	
B86155	NEG	ADMINISTRATION	3RD FLOOR	HALLWAY	OUTSIDE OF 314	CEILINGTILE	
B87234	NEG	ADMINISTRATION	3RD FLOOR	RM 320	SW CORNER	CEILINGTILE	
B940186	NEG	ADMINISTRATION	3RD FLOOR	RM 302-C	FLOOR	TAN LINOLEUM W/MASTIC	BOTH NEG
B940187	1-5% CHRY	ADMINISTRATION	3RD FLOOR	RM 314	FLOOR UNDER CARPET	9X9 FLOOR TILE WHITE W/GREY STREAKS & M	TILE & MASTIC BOTH POSITIVE
B940188	1-5% CHRY	ADMINISTRATION	3RD FLOOR	RM 314	FLOOR UNDER CARPET	9X9 FLOOR TILE WHITE W/GREY STREAKS & M	TILE & MASTIC BOTH POSITIVE
B890259	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 326	NE CORNER CEILING	2X4 CEILINGTILE WHITE PINHOLES &	SAME AS IN 307328305-A
B87091	NEG	ADMINISTRATION	3RD FLOOR	RM 348	FLOOR	FLOORTILE CREAM W/BLOBS	
B87230	NEG	ADMINISTRATION	3RD FLOOR	RM 312-A	SE CORNER	2X4 CEILINGTILE	
B890158	2% CHRY	ADMINISTRATION	3RD FLOOR	RM 342-A	MIDDLE OF ROOM	12X12 FLOORTILE CREAM W/BROWN STREAKS	
B87232	NEG	ADMINISTRATION	3RD FLOOR	RM 318	NE CORNER	9X9 WALLTILE	
B890069	NEG	ADMINISTRATION	3RD FLOOR	RM 350	FRONT OF ELEVATOR	CEILINGTILE WHITE/DEEP SQUIGGLES	
B87090	2-5% CHRY	ADMINISTRATION	3RD FLOOR	RM 348	FLOOR	FLOORTILE TAN W/STREAKS	
B890258	5% AMOS	ADMINISTRATION	3RD FLOOR	RM 307	SW CORNER CEILING	2X4 CEILINGTILE WHITE PINHOLES SQUIGGLES	SAME AS RM 330328326305-A
B880021	5-10% CHRY 10% AMOS	ADMINISTRATION	3RD FLOOR	HALLWAY	SW WING ABOVE VENDING MACHINE	2X2 CEILINGTILE SQUIGGLES & PINHOLES	
B87406	NEG	ADMINISTRATION	3RD FLOOR	RM 341	N WALL OVER DOOR	2X2 CEILINGTILE LG & SM HOLES	
B900306	NEG	ADMINISTRATION	3RD FLOOR	RM 305	NW CORNER CEILING	12X12 CEILINGTILE WHITE SQUIGGLES	
B890188	NEG	ADMINISTRATION	3RD FLOOR	RM 311	CEILING	2X2 WHITE CEILINGTILE	
B87408	NEG	ADMINISTRATION	3RD FLOOR	RM 347	N WALL CEILING	2X2 CEILINGTILE	
B940192	NEG	ADMINISTRATION	ATTIC	ATTIC	RAFTERS	BLOWN-IN INSULATION	
B930327	NEG	ADMINISTRATION	ATTIC	ATTIC	PLATFORM NEAR WINDOWS	ROOF DRAIN PACKING MATERIAL	PACKED AROUND DRAIN PIPE AT WALL
B930328	NEG	ADMINISTRATION	ATTIC	ATTIC	PLATFORM NEAR WINDOWS	ROOF DRAIN PACKING MATERIAL	PACKED AROUND DRAIN PIPE AT WALL
B87061	3-5% CHRY	ADMINISTRATION	BASEMENT	RM 22	ALONG S WALL	FLOORTILE	
B87062	3-5% CHRY	ADMINISTRATION	BASEMENT	RM 22	ALONG N WALL	FLOORTILE	
B900407	NEG	ADMINISTRATION	BASEMENT	RM 15	EAST WALL	ELBOW 8" VERT PIPE	
B900410	NEG	ADMINISTRATION	BASEMENT	RM 15	E SETTLING TANK	MAG BLOCK SEAL 12" HORIZ PIPE	MAY BE SAME AS B900406
B900487	NEG	ADMINISTRATION	BASEMENT	RM 26	N END OF ROOM	9X9 FLOORTILE TAN/BEIGE BROWN STREAKS	
B87066	NEG	ADMINISTRATION	BASEMENT	RM 22	CEILING ALONG W WALL	CEILINGTILE	
B87063	10-15% CHRY	ADMINISTRATION	BASEMENT	RM 22	ALONG W WALL	FLOORTILE	
B900486	NEG	ADMINISTRATION	BASEMENT	RM 26	S SECTION OF ROOM	9X9 FLOORTILE RED BLACK MASTIC	
B930130	NEG	ADMINISTRATION	BASEMENT	RM 26	CEILING	2X2 CEILING TILE	NO MASTIC SPLINE TYPE
B930131	NEG	ADMINISTRATION	BASEMENT	RM 26	CEILING	2X2 CEILING TILE	NO MASTIC SPLINE TYPE
B87067	NEG	ADMINISTRATION	BASEMENT	RM 22	CEILING ALONG N WALL	CEILINGTILE	
B930133	NEG	ADMINISTRATION	BASEMENT	RM 26	IN MECH RM	PIPE ELBOW INSULATION	
B900405	NEG	ADMINISTRATION	BASEMENT	RM 15	EAST WALL	PIPE 8" HORIZ ELBOW	
B900490	NEG	ADMINISTRATION	BASEMENT	RM 26	SE SECTION OF ROOM	ELBOW 6"	
B900394	NEG	ADMINISTRATION	BASEMENT	RM 15	UNDER PUMPS NEAR PIPES	MAG BLOCK PIPE LAGGING	
B930129	NEG	ADMINISTRATION	BASEMENT	RM 26	SE CORNER	COVE BASE MASTIC	NO COVE BASE
B87065	NEG	ADMINISTRATION	BASEMENT	RM 22	CEILING ALONG S WALL	CEILINGTILE	
B900489	NEG	ADMINISTRATION	BASEMENT	RM 26	SE CORNER OF ROOM	12X12 WALLBOARD YELLOW	
B900488	NEG	ADMINISTRATION	BASEMENT	RM 26	SE CORNER OF ROOM	2X2 MT CEILINGTILE	
B930543	NEG	ADMINISTRATION	BASEMENT	HALLWAY	DOORWAY TO RM 26	12X12 FLOORTILE BROWN W/STREAKS & MASTIC	CREME & BROWN STREAKS
B940007	1-5% CHRY	ADMINISTRATION	BASEMENT	RM 5-B	STEAM PIPE	STEAM PIPE MUDDED JOINT	

Sample#	Results	Building	Floor	Room	Location	Material	Comments
B940008	5-10% CHRY	ADMINISTRATION	BASEMENT	RM 5-B	STEAM PIPE	STEAM PIPE MUDDED JOINT	
B930128	NEG	ADMINISTRATION	BASEMENT	RM 26	SE CORNER OF RM 1X1 TILE W/2 HOLE SIZES	WALL TILE MASTIC	
B87068	NEG	ADMINISTRATION	BASEMENT	RM 22	LARGE PIPE ALONG E WALL	PIPE ELBOW	
B87082	NEG	ADMINISTRATION	BASEMENT	RM 22	WALL WITH DOOR	WALLCORE	
B87083	NEG	ADMINISTRATION	BASEMENT	RM 22	WALL WITH DOOR	WALLCORE	
B930132	NEG	ADMINISTRATION	BASEMENT	RM 26	NE CORNER OF RM	COVE BASE MASTIC	NO COVE BASE
B900406	NEG	ADMINISTRATION	BASEMENT	RM 15	EAST WALL	PIPE 12" HORIZ ELBOW	
B930134	1-5% CHRY	ADMINISTRATION	BASEMENT	RM 26	NEAR SE CORNER	PIPE ELBOW INSULATION	
B930135	NEG	ADMINISTRATION	BASEMENT	RM 26	S WALL	PIPE ELBOW INSULATION	
B900409	NEG	ADMINISTRATION	BASEMENT	RM 15	NEXT TO STEAM TUNNEL ENTRANCE	ELBOW 6" HORIZ PIPE	
B900408	NEG	ADMINISTRATION	BASEMENT	RM 15	NEXT TO STEAM TUNNEL ENTRANCE	ELBOW 8" VERT PIPE	
B85029	20-25% CHRY	ADMINISTRATION	BASEMENT	RM 09	CEILING	CEILINGTILE	ORIG SAMPLE NUM=B85012
B86176	NEG	ADMINISTRATION	BASEMENT	RM 12	BY S WING	CEILINGTILE	STAIRS TO BASEMENT
B87157	NEG	ADMINISTRATION	BASEMENT	RM 20	E WALL	PIPE ELBOW INSULATION	
B87156	NEG	ADMINISTRATION	BASEMENT	RM 20	E WALL	PIPE INSULATION/GRAY CEMENT	
B85040	NEG	ADMINISTRATION	BASEMENT	HALLWAY	CEILING	CEILINGTILE TAN FILLER TILE PATCH	ORIG SAMPLE NUM=B85023
B85039	5-10% CHRY 15% AMOS	ADMINISTRATION	BASEMENT	HALLWAY	CEILINGS BY RM 7B	CEILINGTILE WHITE TILE PATCH	ORIG SAMPLE NUM=B85022
B87158	NEG	ADMINISTRATION	BASEMENT	RM 20	E WALL	WALLCORE	
B890148	NEG	ADMINISTRATION	BASEMENT	RM 04-E	NW OF GREY WATER TANK	WHITE PLASTER ON SETTLING FILTER	6" VERT PIPE
B87069	70-75% CHRY	ADMINISTRATION	BASEMENT	RM 22	E-W PIPE	PIPE ELBOW	
B87070	NEG	ADMINISTRATION	BASEMENT	RM 22	N WALL	PIPE ELBOW	
B87077	NEG	ADMINISTRATION	BASEMENT	RM 22	WALL WITH DOOR	WALLCORE	
B87064	75-80% CHRY	ADMINISTRATION	BASEMENT	RM 22	FLOOR SW CORNER	ROLLED LINOLEUM	
B890129	NEG	ADMINISTRATION	BASEMENT	HALLWAY	CEILING	2X4 CEILINGTILE WHITE SQUIGGLES &	
B890271	NEG	ADMINISTRATION	BASEMENT	RM 04	MIDDLE OF CEILING	2X2 CEILINGTILE WHITE PINHOLES &	
B87159	NEG	ADMINISTRATION	BASEMENT	RM 20	FLOOR	FLOORTILE	
B85030	NEG	ADMINISTRATION	BASEMENT	RM 19	CEILING	CEILINGTILE	ORIG SAMPLE NUM=B85013

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Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

Ref Number: CA953912

POLARIZED LIGHT MICROSCOPY (PLM)

Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-33		Tan Fibrous Heterogeneous	Teased		None Detected	40%	Cellulose	60%	Other
1A-34		Tan Fibrous Homogeneous	Teased		None Detected	30%	Synthetic	70%	Other
1A-35		Tan Fibrous Homogeneous	Teased		None Detected	30% 30%	Cellulose Min. Wool	40%	Other
1A-36		Tan Fibrous Homogeneous	Teased		None Detected	30% 40%	Cellulose Min. Wool	30%	Other
1A-37		Tan Non-Fibrous Homogeneous	Crushed		None Detected		None Detected	100%	Other
1A-38		Tan Fibrous Homogeneous	Teased		None Detected	30% 30%	Cellulose Min. Wool	40%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

Laboratory
Supervisor

Other Approved
Signatory

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Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-28 TILE		Black Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile		None Detected	80%	Ca Carbonate 20% Other
1A-28 MASTIC		Black Non-Fibrous Homogeneous	Dissolved	2%	Chrysotile		None Detected	98%	Other
1A-29		Tan/Black Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile		None Detected	80%	Ca Carbonate 20% Other
1A-30		Tan/Black Non-Fibrous Homogeneous	Crushed	1%	Chrysotile		None Detected	80%	Ca Carbonate 19% Other
1A-31		Tan Fibrous Heterogeneous	Teased		None Detected	30%	Cellulose	70%	Other
1A-32		Tan Fibrous Heterogeneous	Teased		None Detected	40%	Cellulose	60%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

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Friday, January 05, 1996

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POLARIZED LIGHT MICROSCOPY (PLM)

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SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-20 TILE		Grey Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile		None Detected	80% 20%	Ca Carbonate Other
1A-20 MASTIC		Black Fibrous Homogeneous	Dissolved	None Detected		15%	Cellulose	85%	Other
1A-21 TILE		Grey Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile		None Detected	80% 20%	Ca Carbonate Other
1A-21 MASTIC		Black Fibrous Homogeneous	Dissolved	None Detected		15%	Cellulose	85%	Other
1A-22 TILE		Grey Non-Fibrous Homogeneous	Crushed	1%	Chrysotile		None Detected	75% 24%	Ca Carbonate Other
1A-22 MASTIC		Black/Brown Fibrous Heterogeneous	Dissolved	None Detected		20%	Cellulose	80%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

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EMSL

Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

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POLARIZED LIGHT MICROSCOPY (PLM)

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SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS % TYPE	NONASBESTOS % FIBROUS	NONASBESTOS % NONFIBROUS
1A-15		Tan Fibrous Homogeneous	Teased	None Detected	30% Cellulose 40% Min. Wool	30% Other
1A-16		Tan Non-Fibrous Homogeneous	Crushed	None Detected	2% Cellulose	80% Ca Carbonate 18% Other
1A-17		Brown Non-Fibrous Homogeneous	Crushed	None Detected	None Detected	50% Ca Carbonate 50% Other
1A-18		Brown Non-Fibrous Homogeneous	Crushed	None Detected	None Detected	50% Ca Carbonate 50% Other
1A-19 TILE		Grey Non-Fibrous Homogeneous	Crushed	None Detected	None Detected	80% Ca Carbonate 20% Other
1A-19 MASTIC		Black Fibrous Homogeneous	Dissolved	None Detected	10% Cellulose	90% Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

Laboratory
Supervisor

Other Approved
Signatory

Westmont, NJ 609-858-4800 | Piscataway, NJ 908-981-0550 | Carle Place, NY 516-997-7251 | Manhattan, NY 212-290-0052 | Melbourne, FL 407-725-6223 | Ann Arbor, MI 313-668-6810 | San Mateo, CA 415-578-6401 | Smyrna, GA 404-333-6066 | Greensboro, NC 910-297-1487 | Houston, TX 713-686-3635

Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

Ref Number: CA953912

POLARIZED LIGHT MICROSCOPY (PLM)

Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-09 MASTIC		Black Non-Fibrous Homogeneous	Dissolved	None Detected		3%	Cellulose	97%	Other
1A-10		Tan Fibrous Homogeneous	Teased	None Detected		20% 50%	Cellulose Min. Wool	30%	Other
1A-11		Tan Fibrous Homogeneous	Teased	None Detected		20% 50%	Cellulose Min. Wool	30%	Other
1A-12		Tan Fibrous Homogeneous	Teased	None Detected		20% 50%	Cellulose Min. Wool	30%	Other
1A-13		Tan Fibrous Homogeneous	Teased	None Detected		30% 40%	Cellulose Min. Wool	30%	Other
1A-14		Tan Fibrous Homogeneous	Teased	None Detected		30% 40%	Cellulose Min. Wool	30%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

Laboratory
Supervisor

Other Approved
Signatory

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EMSL

Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

Ref Number: CA953912

POLARIZED LIGHT MICROSCOPY (PLM)

Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-01 TILE		Tan Non-Fibrous Homogeneous	Crushed	None Detected			None Detected	100%	Other
1A-01 BACKING		Tan Fibrous Homogeneous	Teased	70%	Chrysotile		None Detected	30%	Other
1A-02				Not Analyzed					
1A-03				Not Analyzed					
1A-04		Tan/White Non-Fibrous Homogeneous	Crushed	None Detected		2%	Cellulose	98%	Other
1A-05		Tan/White Non-Fibrous Homogeneous	Crushed	None Detected			None Detected	100%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

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Supervisor

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Signatory

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Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

Ref Number: CA953912

POLARIZED LIGHT MICROSCOPY (PLM)

Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-06		Tan/White Non-Fibrous Homogeneous	Crushed	None Detected		None Detected		100%	Other
1A-07 TILE		Grey Non-Fibrous Homogeneous	Crushed	None Detected		None Detected		75%	Ca Carbonate
								25%	Other
1A-07 MASTIC		Black Non-Fibrous Homogeneous	Dissolved	None Detected		2%	Cellulose	98%	Other
1A-08 TILE		Grey Non-Fibrous Homogeneous	Crushed	None Detected		None Detected		70%	Ca Carbonate
								30%	Other
1A-08 MASTIC		Black Non-Fibrous Homogeneous	Dissolved	None Detected		2%	Cellulose	98%	Other
1A-09 TILE		Grey Non-Fibrous Homogeneous	Crushed	None Detected		None Detected		70%	Ca Carbonate
								30%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

Laboratory
Supervisor

Other Approved
Signatory

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Bison Environmental Resources
South 107 Cedar
Spokane, WA 99201

Friday, January 05, 1996

Ref Number: CA953912

POLARIZED LIGHT MICROSCOPY (PLM)

Project: #95448 - ADMIN

SAMPLE	LOCATION	APPEARANCE	SAMPLE TREATMENT	ASBESTOS %	ASBESTOS TYPE	NONASBESTOS %	NONASBESTOS FIBROUS	NONASBESTOS %	NONASBESTOS NONFIBROUS
1A-39 WHITE MATERIAL		White Non-Fibrous Homogeneous	Crushed	None Detected		None Detected		85% 15%	Gypsum Other
1A-39 BROWN MATERIAL		Brown Fibrous Homogeneous	Teased	None Detected		70%	Cellulose	30%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

Nonette Patron
Analyst

Laboratory
Supervisor

Other Approved
Signatory

EMSL Analytical, Inc.

Asbestos

CHAIN OF CUSTODY

Your Company Name: BISON ENVIRONMENTAL

Project Name/Number: ADMIN - 95448 - U of I Purchase Order #: 95448-04

SAMPLE NUMBER	LOCATION	VOLUME (If Applicable)
1A - 01, 02, 03	SVF & MST	TEST TIL
1A - 04, 05, 06	Carpet Mastic	FIRST
A - 07, 08, 09	VT & MST	POSITIVE
A - 10, 11, 12	CT	(ASBESTOS)
A - 13, 14, 15	CT	
A - 16, 17, 18	Cove base Mastic	
1A - 19, 20, 21	VT + MST	
1A - 22, 23, 24	VT + MST	
A - 25, 26, 27	CT	
1A - 28, 29, 30	VT + MST	
A - 31, 32, 33	SVF	
1A - 34	Carpet MST	
A - 35, 36	CT	
1A - 37	Covebase Mastic	
A - 38	CT	
1A - 39	SVF	
1P - 01	White Paint	LEAD
1P - 02	Beige Paint	
1P - 03	White Paint	
1P - 04	Beige Paint	
1P - 05	Creme Paint	
~~1P - 06~~		

NOTE: Please duplicate this form and use additional sheets if necessary.

EMSL Analytical, Inc.

CHAIN OF CUSTODY

Asbestos +LEAD

EMSL Representative:

Your Company Name: BISON ENVIRONMENTAL

EMSL-Bill to:

Street: S 107 Cedar

Box #:

City/State: Spokane WA Zip 99204

Street:

Box #:

City/State: Zip:

Phone Results to: Name Theresa Jameson

Telephone #: 509 624 4341

Fax Results to: Name

Fax Number: 509 624 4358

Project Name/Number: 95448 - ADMIN

Purchase Order #: 95448-1

MATRIX

- ☐ Air
- ☒ Bulk
- ☐ Wipe
- ☐ Floor Tile
- ☐ Drinking Water
- ☐ Wastewater
- ☐ Soil
- ☐ Dust

TURNAROUND

- ☐ 6-10 Days
- ☒ 5 Days
- ☐ 72 Hour
- ☐ 48 Hour
- ☐ 24 Hour
- ☐ 12 Hour
- ☐ Same Day*
- ☐ 6 Hour

*S.D. - A.M. delivery by Fed. Ex.-Results by Mid-night or earlier

PCM
- ☐ NIOSH 7400
- ☐ OSHA
- ☐ Other:

PLM
- ☒ EPA 600 39 Samples
- ☐ NOB
- ☐ Point Count
- ☐ Other:

SEM
- ☐ Qualitative
- ☐ Quantitative

TEM AIR
- ☐ AHERA
- ☐ NIOSH 7402
- ☐ Level I
- ☐ Level II

TEM BULK
- ☐ Drop Mount (Qualitative)
- ☐ Chatfield
- ☐ Chatfield / SEM QC
- ☐ Conventional (Quantitative)
- ☐ EMSL Method
- ☐ NOB
- ☐ NOB / SEM QC
- ☐ Micro Vac - Quantitative
- ☐ Micro Vac - Qualitative

TEM WATER
- ☐ Wastewater
- ☐ Drinking Water EPA 100.1
- ☐ Water - NY Wastewater
- ☐ Water-NY Drinking Water

TEM WIPE
- ☐ Quantitative
- ☐ Qualitative

XRD
- ☐ Asbestos
- ☐ Silica

5 samples LEAD

OTHER NIOSH 7420 Method
- ☒ AAS SW846 3050

Client Sample # (s) LEAD IP-01 ASBESTOS IA-01 - IP-05 IA-39

Total Samples: Lead 5 Asbestos 39

Relinquished: Theresa Jameson Date: 12-21-95 Time: 10:30 AM

Received: Cristeda Guidos Date: 12/26/95 Time: 10:05 AM

NOTE: Please duplicate this form and use additional sheets if necessary.

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: Idaho Division Of Public Works
502 N. 4th Street, PO Box 8372
Boise ID 83720-0072

Report Date: 3/29/2010
Project: UOfI; Administration
Project No.: DPW 10902

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 3904352 **Description / Location:** Lt.Tan Glazing
Client No.: WG01-A

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Lab No.: 3904353 **Description / Location:** Lt.Tan Glazing
Client No.: WG01-B

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Lab No.: 3904354 **Description / Location:** Lt.Tan Glazing
Client No.: WG01-C

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

Lab No.: 3904355 **Description / Location:** Lt.Grey Glazing
Client No.: WFC01-A

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.1	Chrysotile	None Detected	None Detected	PC 97.9

NIST-NVLAP No. 101165-0 **NY-DOH No. 11021** **AIHA Lab No. 100188**

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Quantification at <0.25% by volume is possible with this method. (PC-Trace) represents this limit of quantitation. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix.

Analysis Performed By: L. Solebello

Approved By:

Date: 3/26/2010

Frank E. Ehrenfeld, III
Laboratory Director

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway Suite B Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

CERTIFICATE OF ANALYSIS

Client: Idaho Division Of Public Works
502 N. 4th Street, PO Box 8372
Boise ID 83720-0072

Report Date: 3/29/2010
Project: UOfI; Administration
Project No.: DPW 10902

BULK SAMPLE ANALYSIS SUMMARY

Lab No.: 3904356 **Description / Location:** Lt.Grey Glazing
Client No.: WFC01-B

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.5	Chrysotile	None Detected	None Detected	PC 97.5

Lab No.: 3904357 **Description / Location:** Lt.Grey Glazing
Client No.: WFC01-C

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
PC 2.3	Chrysotile	None Detected	None Detected	PC 97.7

Lab No.: 3904357 **Description / Location:** Lt.Tan Glazing **Layer No.: 2**
Client No.: WFC01-C

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	Trace	Other	100

Lab No.: 3904357 **Description / Location:** Grey Cementitious **Layer No.: 3**
Client No.: WFC01-C

% Asbestos	Type	% Non-Asbestos Fibrous Material	Type	% Non-Fibrous Material
None Detected	None Detected	None Detected	None Detected	100

NIST-NVLAP No. 101165-0 **NY-DOH No. 11021** **AIHA Lab No. 100188**

Analysis Method: EPA 600/R-93/116

Comments: (PC) Indicates Stratified Point Count Method performed. Method not performed unless stated. Quantification at <0.25% by volume is possible with this method. (PC-Trace) represents this limit of quantitation. (PC-Trace) means that asbestos was detected but is not quantifiable under the Point Counting regimen. Analysis includes all distinct separable layers in accordance with EPA 600 Method. If not reported or otherwise noted, layer is either not present or the client has specifically requested that it not be analyzed. Small asbestos fibers may be missed by PLM due to resolution limitations of the optical microscope. Therefore, negative PLM results cannot be guaranteed. Electron Microscopy can be used as a confirming technique. Regulatory Limit is based upon the sample matrix.

Analysis Performed By: L. Solebello

Date: 3/26/2010

International Asbestos Testing Laboratories
9000 Commerce Parkway, Suite B
Mt. Laurel, New Jersey 08054

Tel. 856 231-9449
Fax 856 231-9818

- Chain of Custody - University of Idaho

Client: State of Idaho
Division of Public Works
502 N. 4th St. Boise Idaho

Project Name: Administration
Project No.: OPW 10902
Invoice 30555

Phone: 208-332-1908
FAX: 208-334-4031

Contact: Darrel Armstrong
Pager:

Special Instructions: Please email Results to DPW Consultant – daylelumby@industrialhygienemeasources.com

Type:

Asbestos		Lead		Other
[ ] Air	[ ] Soil	[ ] Air	[ ] Soil	
[4] Bulk	[ ] Dust	[ ] Bulk	[ ] Paint	
[ ] Water	[ ] Other	[ ] Water	[ ] Other	

Analysis Method:

[ ] PCM : NIOSH 7400	[4] PLM : Bulk Asbestos EPA 600	[ ] TEM : AHERA
[ ] PCM : OSHA	[ ] PLM : Point Counting 198.1	[ ] TEM : NIOSH 7402
[ ] PCM : Other_____	[ ] PLM : NOB via 198.1 (PLM only)	[ ] TEM : EPA Level II
	[ ] If <1% by PLM, to TEM via 198.4	[ ] TEM : Microvac / Wipe
[ ] AAS : NIOSH 7082 (Air)	to meet NYSDOH requirements **	[ ] TEM : Asbestos in Water
[ ] AAS . Lead in Drinking Water	(**call to confirm TAT!)	[ ] TEM : Bulk Analysis
[ ] AAS : Lead in Paint ASTM D3335-85a		[ ] TEM : NOB 198.4
[ ] AAS : Lead Dust/Wipe		[ ] TEM : Other_____
[ ] AAS : Other Metals / Soil_____		[ ] Total Dust : NIOSH 0500

Turnaround Time:

FAX: _____ (date / time) Verbals: _____ (date / time)

[ ] 10 Day [ ] 5 Day [4] 3 Day [ ] 2 Day [ ] 1 Day [ ] 6 hour [ ] RUSH

Preliminary FAX/Verbal Results Requested by: _____

Sample Numbers:

WGol-A, B, C — Window Glazing
RFCol-A, B, C — Asphalt Fome Caulking

Client #(s): 1 (start) – 6 (end) IATL#(s): _____ (start) – _____ (end) Total: ___

Chain of Custody:

Relinquished:	Daylen Lumby	Date: 3-22-10	Time: 1600
Received:		Date:	Time:
Sample Log-in:	MA 3/24/10	Date:	Time:
Sample Prep:		Date:	Time:
Analyzed:	LA	Date: 3/24/10	Time:
QA/QC Review:		Date:	Time:

RECEIVED MAR 23 2010 IATL - BY

Archived/Released: _____ QA/QC InterLAB Use: _____ Date: _____ Time: _____

IATL International Asbestos Testing Laboratories

9000 Commerce Parkway, Suite B, Mt. Laurel, NJ 08054
Telephone: 856-231-9449 Fax: 856-231-9818

Sample Log

Client: Idaho DPW

Project #: DPW10902

Date Received: 3/23/10

Project Name: Univ. of Idaho

Turn Around Time: 3 Day

Lab Contact: Shirley Clark/Ray Sankey

Client Sample #	IATL #	Comments	Client Sample #	IATL #	Comments
ST01-A	3904343				
B	3904344				
C	3904345				
SW01 - A	3904346		Buchanan		
B	3904347				
C	3904348				
WFC01-A	3904349				
B	3904350		Brink Phinney		
C	3904351				
WG01-A	3904352				
B	3904353				
C	3904354		Admin		
WFC01-A	3904355				
B	3904356				
C	3904357				

Inspectors Certificates

UNIVERSITY OF UTAH
SCHOOL OF MEDICINE | Rocky Mountain Center for Occupational & Environmental Health

Department of Family & Preventive Medicine
391 Chipeta Way, Suite C
Salt Lake City UT 84108
Phone: (801) 581-4055
Fax: (801) 585-5275

THIS CERTIFIES THAT

Dayle Lundy

HAS COMPLETED THE REQUISITE TRAINING FOR ASBESTOS ACCREDITATION UNDER TSCA TITLE II

ATTENDED AN ANNUAL REFRESHER COURSE IN

PRACTICES AND PROCEDURES IN ASBESTOS ABATEMENT

Asbestos Inspector/Management Planner Refresher - Pocatello ID

DATE: September 9, 2011
NUMBER: 110627
EXPIRES: September 9, 2012
CREDITS: 0.80 CEUs / 1.34 ABIH CM Points

Connie Crandall, MBA, MA
Continuing Education Director

United States Environmental Protection Agency

This is to certify that

Dayle C. Lundy

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Inspector

In the Jurisdiction of:

Idaho

This certification is valid from the date of issuance and expires April 17, 2015

ID-I-17968-2

Certification #

JAN 05 2012

Issued On

Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

This is to certify that

Dayle C. Lundy

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Risk Assessor

In the Jurisdiction of:

Idaho

This certification is valid from the date of issuance and expires April 17, 2015

ID-R-17968-2

Certification #

JAN 05 2012

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Inspector

In the Jurisdiction of:

Region 10 Tribal Lands

This certification is valid from the date of issuance and expires April 17, 2015

T10-I-17968-2

Certification #

JAN 05 2012

Issued On

Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

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Risk Assessor

In the Jurisdiction of:

Region 10 Tribal Lands

This certification is valid from the date of issuance and expires April 17, 2015

T10-R-17968-2

Certification #

JAN 05 2012

Issued On

Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

This is to certify that

Steve Mabe

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Inspector

In the Jurisdiction of:

Region 10 Tribal Lands

This certification is valid from the date of issuance and expires April 1, 2015

T10-I-17963-2

Certification #

JAN 09 2012

Issued On

Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

This is to certify that

Steve Mabe

has fulfilled the requirements of the Toxic Substances Control Act (TSCA) Section 402, and has received certification to conduct lead-based paint activities pursuant to 40 CFR Part 745.226 as a:

Risk Assessor

In the Jurisdiction of:

Region 10 Tribal Lands

This certification is valid from the date of issuance and expires April 1, 2015

T10-R-17963-2

Certification #

JAN 09 2012

Issued On

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Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

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Inspector

In the Jurisdiction of:

Idaho

This certification is valid from the date of issuance and expires April 1, 2015

ID-I-17963-2

Certification #

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Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

United States Environmental Protection Agency

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Risk Assessor

In the Jurisdiction of:

Idaho

This certification is valid from the date of issuance and expires April 1, 2015

ID-R-17963-2

Certification #

JAN 09 2012

Issued On

Christina Colt

Christina Colt, Unit Manager, Solid Waste and Toxics

Office of Air, Waste and Toxics

University of Idaho
Summary List of Suspect Asbestos Materials

Site: Moscow Campus
Bldg ID: 001, Administration
851 Campus Dr
Moscow, ID 83844

HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
UI2009216	carpet adh, VFT/mastic, linoleum, felt paper/mastic, green adhesive, off-white VFT, black mastic, brown linoleum, twine backing, black felt, brown mastic	UI	306	YES	3% chrysotile in black mastic
2006138	Carpet Adhesive on beige tile, soft tan mastic on beige brittle material	UI	206	YES	2% Chrysotile in tile
2007038	Carpet Adhesive, Floor tile & mastic, tan soft mastic on off-white tile w/ black mastic	UI	311D	YES	2% Chrysotile in tile
2006183	Carpet adhesive, floor tile & mastic, yellow adhesive on off-white tile on black mastic	UI	306	YES	2-3% Chrysotile in tile & mastic
2010019	chalkboard, black	UI	204	YES	30% chrysotile
2006139	Covebase and mastic, black base & brown brittle mastic	UI	206	YES	2% Chrysotile in mastic
2006182	Floor mastic, tile, and felt, black mastic on brown tile on black felt	UI	306	YES	1-5% Chrysotile in black mastic
B950163	floor tile & mastic w/ carpet mastic, 9" tile and mastics	UI	2nd floor hallway, W end	YES	5-10% chrysotile
2008101	Floor Tile And Adhesive, 12" off-white tile & yellow adh	UI	129, 131	YES	0.5-1% chry in VFT
B890051	floor tile and felt, 9" tan w/ beige and brown streaks	UI	119	YES	2% chrysotile
B940060	floor tile and mastic, 9" cream w/ brown streaks tile and mastic	UI	332, 334	YES	1% chrysotile
B930337	floor tile and mastic, 9" gray tile w/ cream and orange streaks, mastic and felt	UI	117	YES	1-5% chrysotile
B930340	floor tile and mastic, 9" gray w/ cream and orange streaks, mastic and felt	UI	121	YES	1-5% chrysotile
B940193	floor tile and mastic, 9" gray w/ cream, orange, and brown streaks and mastic	UI	3rd floor women's restroom	YES	1-5% chrysotile
B930344	floor tile and mastic, 9" tan w/ brown and cream streaks, mastic and felt	UI	123	YES	1-5% chrysotile

University of Idaho
Summary List of Suspect Asbestos Materials

Site: Moscow Campus
Bldg ID: 001, Administration
851 Campus Dr
Moscow, ID 83844

HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
B920529	floor tile and mastic, 9" tan w/ light and dark streaks & mastic	UI	129	YES	5-10% chrysotile
B940187	floor tile and mastic, 9" white w/ gray streaks and mastic	UI	314	YES	1-5% chrysotile
2007134	floor tile mastic on linoleum on felt, black mastic on brown linoleum on black felt	UI	332	YES	5% chry in black mastic
B910044	floor tile mastic,	UI	305C	YES	2% chrysotile
2000208	Floor Tile Mastic, black	UI	010	YES	20% Chrysotile
2007312	Floor Tile With Mastic, 12" cream tile & black mastic	UI	129B (abated here)	YES	<1% Chrysotile in VFT
2007320	Floor Tile With Mastic, 12" tan tile & black mastic	UI	SE Entry	YES	2% chry in tile
2007131	Floor Tile With Mastic, 9" off-white tile & black mastic	UI	307	YES	5-10% Chrysotile in both
2007139	Floor Tile With Mastic, 9" off-white tile & black mastic	UI	336	YES	3-5% Chrysotile in both
2007130	Floor Tile With Mastic, 9" olive tile & black mastic	UI	307	YES	3-5% Chrysotile in both
2007154	Floor Tile With Mastic, 9" orange-brown tile & black mastic	UI	226	YES	5-10% Chrysotile in both
2007133	Floor Tile With Mastic, 9" tan tile & black mastic	UI	332	YES	3-10% Chrysotile in both
2007135	Floor Tile With Mastic, 9" tan tile & black mastic	UI	334	YES	3-8% Chrysotile in both
2007137	Floor Tile With Mastic, 9" tan tile & black mastic	UI	336	YES	1-5% Chrysotile
2007141	Floor Tile With Mastic, brown tile on black material	UI	132	YES	20% Chrysotile
2000140	Floor Tile With Mastic, green tile & brown mastic	UI	women's lounge	YES	30% Chrysotile

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HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
2003103	Floor Tile With Mastic, off-white tile & yellow mastic	UI	311B	YES	2-5% Chrysotile in tile
2007143	Floor Tile With Mastic, white tile & black mastic	UI	135	YES	4-15% Chrysotile in both
2003105	Floor Tile With Mastics, off-white tile w/ yellow and brown mastics	UI	313C	YES	1-5% Chrysotile in tile
B87159	floor tile,	UI	020, 022	YES	3-15% chrysotile
B900392	floor tile, 12" brown mottled	UI	hallway outside 117-123	YES	2% chrysotile
B900265	floor tile, 12" light gray/tan/brown	UI	101 outside 101G	YES	2% chrysotile
B920056	floor tile, 12" white w/ gray streaks	UI	129	YES	1-5% chrysotile
B87377	floor tile, 9" light brown	UI	3rd floor women's restroom	YES	1-2% chrysotile
2000207	Floor Tile, brown	UI	010	YES	10% Chrysotile
2011103	floor tile, mastic, and leveling compound, 12" tan marbled VFT w/ black mastic & white LC	UI	HL14 main corridor by ITS	YES	5% chrysotile in tile
B910049	floor tile, mastic, and underlayment, 9" tan w/ lt and dk brown tile, mastic and felt	UI	209D, 212	YES	5% chrysotile
B87090	floor tile, tan w/ streaks	UI	348	YES	2-5% chrysotile
B87064	linoleum,	UI	022	YES	75-80% chrysotile
B950063	linoleum, mastic, and carpet mastic,	UI	225	YES	1-20% chrysotile
B920063	linoleum, yelow-green w/ rock pattern	UI	118A	YES	10-20% chrysotile
B87155	pipe elbow TSI, mud	UI	128, 026, 005B	YES	1-10% chrysotile
B86071	pipe insulation liner, liner on steam pipe	UI	204	YES	95% chrysotile

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HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
B87069	pipe insulation, mudded elbow	UI	022	YES	70-75% chrysotile
B87154	pipe TSI, north wall verticle pipe	UI	128	YES	60% chry, 10% amos
2003330	Roof Patching Compound, tan crumbly mortar	UI	roof	YES	15% Chrysotile
1A-01	Sheet vinyl flooring, brown confetti vinyl w/ tan backing	Bison	004B	YES	70% chrysotile
B920059	suspended ceiling tile, 2x4 white w/ squiggles and pinholes	UI	118, 203, 205, 3rd flr hall, 300D, 306, 307, 312, 314, 317, 319, 323, 326, 327, 338, 338B, basement hall, 009	YES	1-15% chr, 1-15% amos
2007067	Wall Panel glue, brown adhesive	UI	112A	YES	5% Chrysotile
2007296	Window Glazing Compound, brownish/gray brittle putty	UI	Exterior S side - original windows	YES	5% Chrysotile
B940192	attic blown-in insulation,	UI	attic	NO	ND
2007073	Brick, red	UI	104A	NO	None Detected
2011142	carpet adh on SVF on VB, gold glue on brown SVF w/ twine backing and white vapor barrier	UI	104F	NO	ND
UI2009217	carpet adh, linoleum, felt paper, mastic, gold adh, brown SVF, twine backing, black felt, brown mastic	UI	322	NO	ND
2006181	Carpet adhesive, floor tile & felt, yellow adhesive on green tile on black felt	UI	301	NO	None Detected
2007053	Carpet Adhesive, Floor Tile & Mastic, yellow adhesive on gray tile on brown mastic	UI	221	NO	None Detected
2007142	Carpet Adhesive, gold	UI	132	NO	None Detected
2007190	Carpet Adhesive, gold	UI	320A	NO	None Detected
2003063	Carpet Adhesive, orange adhesive	UI	3rd floor hall	NO	None Detected
2003999	Carpet Adhesive, tan	UI	112	NO	None Detected

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2006140	Carpet Adhesive, yellow	UI	208	NO	None Detected
2006179	Carpet Adhesive, yellow	UI	300D	NO	None Detected
2007069	Carpet Adhesive, yellow	UI	112A	NO	None Detected
2007076	Carpet Adhesive, yellow	UI	104B	NO	None Detected
2011150	carpet glue on floor tile, gold sticky glue on brown floor tile (no black mastic identified)	UI	225	NO	ND
B950061	carpet mastic,	UI	210	NO	ND
B85042	ceiling material,	UI	2nd floor hall, 209A, 209B, 209C, 209E, 209F, 209G, 211, 213, 215, 217	NO	ND
1-01	ceiling plaster, white	Fulcrum	2,111A, 105E, 340, 304A	NO	ND
2001534	Ceiling Plaster, white topcoat & gray scratch coat	UI	301	NO	None Detected
2003295	Ceiling Tile & mastic w/ plaster, 12" ACT & brown mastic w/ off-white plaster	UI	301	NO	None Detected
2008078	Ceiling Tile Adhesive, 12" pegboard w/ brown adhesive	UI	107	NO	None Detected
2003050	Ceiling Tile Adhesive, brown mastic	UI	basement hall	NO	None Detected
2007071	Ceiling Tile Adhesive, brown mastic of 12" pegboard tile	UI	104A	NO	None Detected
2001532	Ceiling Tile Adhesive, tan mastic	UI	301	NO	None Detected
B940190	ceiling tile and mastic, 12" pegboard tiles and brown mastic	UI	3rd floor women's restroom	NO	ND
B890185	ceiling tile and mastic, 12" white w/ squiggles, pits and pinholes & brown mastic	UI	301, 305, 331, 337	NO	ND
B85040	ceiling tile filler patch, tan compound	UI	basement hall	NO	ND
2000999	Ceiling Tile,	UI	entry?	NO	None Detected
B86166	ceiling tile,	UI	101E, 102, 105, 107C, 112, 130, 2nd flr hall, 209D, 217, 223, 227, 3rd flr hall, 314A, 320, 331, 341, 012, 019, 022	NO	ND

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HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
2007070	Ceiling Tile, 12" pegboard	UI	104A	NO	None Detected
2003049	Ceiling Tile, 12" tile	UI	basement hall	NO	None Detected
2001533	Ceiling Tile, 12" tile w/ pinholes	UI	301	NO	None Detected
2001535	Ceiling Tile, 12" tile with large holes	UI	208	NO	None Detected
1-12	ceiling tile, 12" white w/ gray matrix	Fulcrum	313	NO	ND
B87522	Ceiling Tile, 2'x2' suspended, white w/ irregular dot pattern	UI	211A, 212, 341, 347	NO	ND
B890270	ceiling tile, 2'x2' suspended, white w/ pits and pinholes	UI	127, 129, 141, 201, 205E, 209, 211, 213, 311, 350, 004, 026	NO	ND
B87099	Ceiling Tile, 2'x4' suspended, white w/ squiggles and pits	UI	2nd floor hall outside room 231B, 203, 308, 310A, 312A, 314A, 338B, basement hall	NO	ND
2007066	Ceiling Tile, 2x2 suspended	UI	112A	NO	None Detected
2007321	Ceiling Tile, 2x2 suspended, white	UI	SE Entry	NO	None Detected
2007074	Ceiling Tile, 2x4 suspended	UI	104A	NO	None Detected
2000135	Ceiling Tile, gray/white	UI	women's lounge	NO	None Detected
2000128	Ceiling Tile, white/brown	UI	132	NO	None Detected
UI2009218	chalkboard, black	UI	322	NO	ND
UI2009219	corkboard mastic, tan mastic	UI	306	NO	ND
2007313	covebase & mastic w/ plaster, blue base, brown mastic, wall plaster	UI	129B	NO	None Detected
2007140	Covebase and 2 mastics, blue-green base, tan adhesive, brown mastic	UI	134	NO	None Detected
2006184	Covebase and adhesive, brown base w/ yellow adhesive	UI	306	NO	None Detected
2006180	Covebase and adhesive, gray base & off-white adh	UI	301	NO	None Detected

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2000130	Covebase and mastic , gray base & off-white mastic	UI	132	NO	None Detected
2007068	Covebase and mastic, black base & white adhesive	UI	112A	NO	None Detected
B920061	covebase and mastic, black base and mastic	UI	118A	NO	ND
B930346	covebase and mastic, black base and mastic	UI	123	NO	ND
2000429	Covebase and mastic, brown base & white mastic	UI	316A	NO	None Detected
2000430	Covebase and mastic, brown base & white mastic	UI	316	NO	None Detected
2000139	Covebase and mastic, dark brown base & tan mastic	UI	women's lounge	NO	None Detected
2000209	Covebase and mastic, gray base and white mastic	UI	010	NO	None Detected
2007037	Covebase and mastic, light brown base & brown mastic	UI	311D	NO	None Detected
B930339	covebase and mastic, orange base and mastic	UI	117, 121	NO	ND
2003104	Covebase and mastic, tan base & brown mastic	UI	311B	NO	None Detected
2007153	Covebase and two mastics, brown base, tan adhesive, brown mastic	UI	226	NO	None Detected
B950161	covebase mastic,	UI	2nd floor hall, 225, 026	NO	ND
2007316	Covebase mastic, brown	UI	131	NO	None Detected
2003998	Covebase mastic, brown brittle mastic	UI	112B	NO	None Detected
2000138	Covebase, beige	UI	women's lounge	NO	None Detected
2000124	Covebase, blue base & brown mastic	UI	132	NO	None Detected
B910344	covebase, brown hard vinyl	UI	203	NO	ND
2007318	Covebase, mastic, and plaster, brown base, tan mastic	UI	SE Entry	NO	None Detected

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HM	Material Description	Floor	Location(s)	Contains Asbestos	Lab Results
2007075	Drywall And Joint Compound, wall	UI	104B	NO	None Detected
2007314	Drywall Joint Compound, white	UI	129B	NO	None Detected
2000137	Drywall, gray/brown	UI	women's lounge	NO	None Detected
2007014	Drywall, wall gypsum	UI	218	NO	None Detected
B910352	drywall, white	UI	201, 201A, 203	NO	ND
2007292	Drywall, white gypsum	UI	105B	NO	None Detected
2007317	Drywall, white gypsum	UI	131	NO	None Detected
2007039	Felt Backing & black mastic, black felt & black mastic	UI	311D	NO	None Detected
2000134	fiberglass insulation, green/yellow/black	UI	women's lounge	NO	None Detected
2004151	Fire Door, off-white core	UI	1st floor north main hall doors	NO	None Detected
2008104	Floor Tile And Adhesive, 12" gray tile & yellow adh	UI	129, 131	NO	None Detected
2008105	Floor Tile And Adhesive, 12" red tile & yellow adh	UI	129, 131	NO	None Detected
B930543	floor tile and mastic, 12" brown w/ cream and brown streaks and mastic	UI	basement hall by 026	NO	ND
B900486	floor tile and mastic, 9" red tile & black mastic	UI	026	NO	ND
B900487	floor tile and mastic, 9" tan w/ beige and brown streaks & mastic	UI	026	NO	ND
2007054	Floor tile mastic & concrete, brown mastic on gray concrete	UI	221	NO	None Detected
2000126	Floor Tile Mastic, black	UI	132	NO	None Detected
B930360	floor tile w/ mastic and carpet mastic, 9" brown tile w/ black and cream streaks & mastics	UI	225	NO	ND

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2007319	Floor Tile With Mastic, 12" off-white tile & black mastic	UI	SE Entry	NO	None Detected
2007315	Floor Tile With Mastic, 12" white tile & brown mastic	UI	131	NO	None Detected
2007055	Floor Tile With Mastic, 9" beige tile & soft white mastic	UI	2nd floor elevator entryway (South elevator)	NO	None Detected
2000136	Floor Tile With Mastic, beige tile & brown mastic	UI	women's lounge	NO	None Detected
B87071	floor tile,	UI	130	NO	ND
B87376	floor tile, 12"	UI	310A	NO	ND
B890158	floor tile, 12" cream w/ brown streaks	UI	342A	NO	ND
B87378	floor tile, 9" tan	UI	341	NO	ND
2000125	Floor Tile, blue-gray	UI	132	NO	None Detected
B87091	floor tile, cream w/ blobs	UI	348	NO	ND
2000129	Floor Tile, tan	UI	132	NO	None Detected
2001523	Floor Tiles, tan & red tiles	UI	3rd floor chase	NO	None Detected
2000133	Formica and mastic, gray/brown formica and tan mastic	UI	women's lounge	NO	None Detected
2000089	Lightweight filler, brown	UI	213	NO	None Detected
B920058	linoleum and adhesive, brown linoleum	UI	118	NO	ND
B940186	linoleum and mastic, tan	UI	302C	NO	ND
B940061	linoleum and mastic, tan w/ swirls	UI	328	NO	ND
B920101	linoleum mastic,	UI	118	NO	ND
2007132	Linoleum, brown marbled	UI	328	NO	None Detected
2000431	Linoleum, brown SVF w/ black & yellow mastics	UI	316	NO	None Detected
2000428	Linoleum, brown SVF w/ black paper backing and brown mastic	UI	316A	NO	None Detected
2007136	Linoleum, green with paper backing	UI	334	NO	None Detected

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B920064	masonite type board, over window	UI	118A	NO	ND
2011001	Mudded pipe tee insulation, off-white crumbly hard mud	UI	024 behind wall in space	NO	ND
B87156	pipe TSI, gray	UI	020, 022, 026 mech room	NO	ND
B900394	pipe TSI, mag block or other TSI	UI	015	NO	ND
2004052	Plaster, ceiling	UI	west stairs	NO	None Detected
2007072	Plaster, ceiling	UI	104A	NO	None Detected
2000309	Plaster, off-white	UI	women's restroom understage?	NO	None Detected
2007015	Plaster, wall	UI	218	NO	None Detected
2007311	Plaster, Wall	UI	129	NO	None Detected
2000127	Plaster, white	UI	132	NO	None Detected
B930327	roof drain wall packing material, fire caulking material?	UI	attic, platform near windows	NO	ND
UI2009213	splined ceiling tile, 12" ACT w/ squiggles and pits	UI	320	NO	ND
2007138	subfloor mastic, brown	UI	336	NO	None Detected
2007294	Suspended ceiling tile, 12" splined white w/ fissures and pits	UI	105	NO	None Detected
1-06	suspended ceiling tile, 2x2 white painted tile w/ gray matrix	Fulcrum	113, 208, 105E, 223	NO	ND
B930349	suspended ceiling tile, 2x2 with 2 size holes	UI	117, 121	NO	ND
1-11	suspended ceiling tile, 2x4 white w/ gray matrix	Fulcrum	227	NO	ND
2007202	Tennis Court Surface, green court material and concrete base	UI	Exterior	NO	None Detected
2000090	Topping material, brown	UI	213	NO	None Detected
B87078	wall core,	UI	130	NO	ND
B910347	wall covering,	UI	203	NO	ND

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2008045	Wall panel adhesive, brown	UI	105B	NO	None Detected
2007293	Wall paper and adhesive, now is removed	UI	105B	NO	None Detected
2003051	Wall Plaster, white topcoat & gray scratch coat	UI	basement hall	NO	None Detected
B910353	wall plaster, white/gray	UI	201, 201A, 202, 203, 209A, 209B, 209C, 209D, 209E, 209G, 209H, 211, 212, 213, 215, 217, 020, 022	NO	ND
B920060	wall plaster, white/gray	UI	118	NO	ND
UI2009212	wall tile and mastic, 12" ACT w/ pin and pencil holes and brown mastic	UI	320	NO	ND
UI2009211	wall tile and mastic, 12" ACT w/ squiggles and pits and brown mastic	UI	318	NO	ND
B930128	wall tile mastic, mastic of 12" tile	UI	026	NO	ND
B900489	wall tile, 12x12 yellow w/ 2 sizes holes	UI	026	NO	ND
B890148	white plaster on settling filter, 6" vertical pipe NW of gray water tank	UI	04E	NO	ND
2009285	wood floor mastic, black	UI	3rd floor corridor by womens restroom	NO	ND
2007999	wood floor mastic, parquet wood black mastic	UI	344	NO	None Detected

Date	Reading	Mode	Pb	Pb +/-	Facility	Room	Feature	Side	Substrate	Color	Condition	Notes
9-Jan-07	1	Niton XL309			Admin	Shutter Cal						
9-Jan-07	2	Niton XL309	1.09	0.13	Admin	Cal (1.09)						
9-Jan-07	3	Niton XL309	0.08	0.11	Admin	218	wall	W	plaster	beige	F	
9-Jan-07	4	Niton XL309	0.11	0.15	Admin	218	wall	W	plaster	beige	F	
9-Jan-07	5	Niton XL309	0.07	0.17	Admin	220	wall	E	plaster	beige	F	
9-Jan-07	6	Niton XL309	0.16	0.35	Admin	220	wall	E	plaster	beige	F	
9-Jan-07	7	Niton XL309	1	0.08	Admin	Cal (1.09)						
9-Jan-07	8	Niton XL309	0	0.02	Admin	218	door	S	wood	stain	P	
9-Jan-07	9	Niton XL309	0.01	0.02	Admin	218	door	S	wood	stain	P	
28-Feb-07	1	Niton XL309			Admin	Shutter Cal						
28-Feb-07	2	Niton XL309	1.01	0.08	Admin	Cal (1.09)						
28-Feb-07	3	Niton XL309	0.3	0.31	Admin	311D	Wall	S	Plaster	Beige	G	L, 6'
28-Feb-07	4	Niton XL309	0	0.11	Admin	311D	Wall	W	Sheetrock	Beige	G	LC, 5'
28-Feb-07	5	Niton XL309	1.38	0.33	Admin	311D	Wall	N	Plaster	Beige	G	RC, 5'
28-Feb-07	6	Niton XL309	0	0.08	Admin	311D	Wall	E	Plaster	Beige	G	C, 4'
28-Feb-07	7	Niton XL309	0.19	0.31	Admin	311D	Wall	E	Plaster	Beige	F	By radiator
28-Feb-07	8	Niton XL309	0.84	0.07	Admin	Cal (1.09)						
28-Feb-07	9	Niton XL309	1.05	0.1	Admin	Cal (1.09)						
5-Mar-07	1	Niton XL309			Admin	Shutter Cal						
5-Mar-07	2	Niton XL309	1.16	0.14	Admin	Cal (1.09)						
5-Mar-07	3	Niton XL309	12.57	2.9	Admin	305B	Wall	E	Plaster	Beige	Poor	C, 1'
5-Mar-07	4	Niton XL309	0.95	0.2	Admin	305B	Wall	E	Plaster	Beige	Poor	L, 6'
5-Mar-07	5	Niton XL309	5.1	1.52	Admin	305B	Chalkboard	E	Wood	Green	Fair	C, 5'
30-Apr-07	1	Niton XL309			Admin	Shutter Cal						
30-Apr-07	2	Niton XL309	0.95	0.09	Admin	Cal (1.09)						
30-Apr-07	3	Niton XL309	1.14	0.12	Admin	Cal (1.09)						
30-Apr-07	4	Niton XL309	0	0.01	Admin	112A	wall	N	wood	white	good	panel
30-Apr-07	5	Niton XL309	0	0.01	Admin	112A	wall	E	wood	white	good	panel
30-Apr-07	6	Niton XL309	0.08	0.2	Admin	112B	wall	N	sheetrock	green	good	
30-Apr-07	7	Niton XL309	-0.16	0.65	Admin	112B	wall	W	sheetrock	green	good	
30-Apr-07	8	Niton XL309	0.46	0.37	Admin	104A	wall	S	plaster	off-white	good	
30-Apr-07	9	Niton XL309	0	0.13	Admin	104A	wall	W	sheetrock	off-white	good	
30-Apr-07	10	Niton XL309	0.51	0.23	Admin	104B	wall	S	plaster	off-white	good	
30-Apr-07	11	Niton XL309	0	0.11	Admin	104B	wall	E	sheetrock	off-white	good	
30-Apr-07	12	Niton XL309	0	0.02	Admin	112	wall	N	wood	stain	good	panel
30-Apr-07	13	Niton XL309	0.08	0.37	Admin	112B	window frame	S	wood	stain	good	

Date	Reading	Mode	Pb	Pb +/-	Facility	Room	Feature	Side	Substrate	Color	Condition	Notes
30-Apr-07	14	Niton XL309	0	0.1	Admin	104A	window frame	W	wood	med brown	good	
30-Apr-07	15	Niton XL309	0	0.01	Admin	104A/B	door trim	W	wood	med brown	good	
30-Apr-07	16	Niton XL309	0.03	0.12	Admin	104A/B	door frame	W	wood	med brown	fair	
30-Apr-07	17	Niton XL309	0.08	0.11	Admin	104A/B	door	W	wood	med brown	good	
30-Apr-07	18	Niton XL309	0.06	0.16	Admin	104A	cabinet shelf	N	wood	med brown	good	
30-Apr-07	19	Niton XL309	0	0.01	Admin	104B	floor base	E	wood	med brown	good	
30-Apr-07	20	Niton XL309	1.1	0.08	Admin	Cal (1.09)						
1-May-07	1	Niton XL309			Admin	Shutter Cal						
1-May-07	2	Niton XL309	1.21	0.15	Admin	Cal (1.09)						
1-May-07	3	Niton XL309	0	0.01	Admin	112D	cabinets	S	wood	stain	good	
1-May-07	4	Niton XL309	0.04	0.22	Admin	112D	cabinets	S	wood	stain	good	
1-May-07	5	Niton XL309	1.13	0.11	Admin	Cal (1.09)						
14-Aug-07	1	Niton XL309			Admin	Shutter Cal						
14-Aug-07	2	Niton XL309	1.02	0.2	Admin	Cal (1.09)						
14-Aug-07	3	Niton XL309	0	0.07	Admin	320	Door		Wood	Stain	Good	To room 320-A
14-Aug-07	4	Niton XL309	0	0.11	Admin	320	Door trim		Wood	COW	Good	To room 320-A
14-Aug-07	5	Niton XL309	0	0.11	Admin	320	Door casing		Wood	COW	Good	To room 320-A
14-Aug-07	6	Niton XL309	0	0.06	Admin	320	Wall		Sheetrock	COW	Good	West wall to 320-A
14-Aug-07	7	Niton XL309	2.93	0.84	Admin	320	Wall		Plaster	COW	Good	South wall to exterior
30-Aug-07	1	Niton XL309			Admin	Shutter Cal						
30-Aug-07	2	Niton XL309	-0.55	0.7	Admin	Tennis Courts	Court surface		Rubber-asphalt	Green	Poor	
30-Aug-07	3	Niton XL309	0	0.02	Admin	Tennis Courts	Court surface		Rubber-asphalt	Red	Poor	
19-Nov-07	1	Niton XL309			Admin	Shutter Cal						
19-Nov-07	2	Niton XL309			Admin	Shutter Cal						
19-Nov-07	3	Niton XL309	0.01	0.05	Admin	105B	wall	W	wood	cow	good	
19-Nov-07	4	Niton XL309	0.39	0.2	Admin	Main corridor	wall	E	wood	brown	good	
19-Nov-07	5	Niton XL309	0.04	0.12	Admin	Main corridor	wall	E	wood	cow	good	
19-Nov-07	6	Niton XL309	13.24	4.48	Admin	Main corridor	wall	E	concrete	brown	good	
19-Nov-07	7	Niton XL309	0.06	0.2	Admin	Main corridor	wall	E	concrete	cow	good	
19-Nov-07	8	Niton XL309	0.08	0.24	Admin	Main corridor	lower trim	E	wood	brown	good	
19-Nov-07	9	Niton XL309	0.01	0.2	Admin	Main corridor	upper trim	E	wood	brown	good	
19-Nov-07	10	Niton XL309	0.92	0.14	Admin	Main corridor	cap	E	concrete	brown	good	
19-Nov-07	11	Niton XL309	0	0.02	Admin	Entry to 105B	door casing		wood	brown	good	
19-Nov-07	12	Niton XL309	0	0.02	Admin	Entry to 105B	door trim		wood	brown	good	
19-Nov-07	13	Niton XL309	0	0.01	Admin	105B	casing/lights		wood	cow	good	
19-Nov-07	14	Niton XL309	0	0.02	Admin	105B	main door		wood	brown	good	

Date	Reading	Mode	Pb	Pb +/-	Facility	Room	Feature	Side	Substrate	Color	Condition	Notes
19-Nov-07	15	Niton XL309	17.05	4.99	Admin	Main corridor	wall	E	concrete	brown	good	
19-Nov-07	16	Niton XL309	0.02	0.02	Admin	105	wall	E	wood	wallpaper	good	
19-Nov-07	17	Niton XL309	0.2	0.31	Admin	105	wall	E	wood	wallpaper	good	
19-Nov-07	18	Niton XL309	-0.28	0.61	Admin	105F	entry	N	sheetrock	lt brown	good	
19-Nov-07	19	Niton XL309	0.11	0.19	Admin	105F	wall	W	wood	wallpaper	good	
19-Nov-07	20	Niton XL309	0.25	0.17	Admin	105	map on wall	W			good	
19-Nov-07	21	Niton XL309	0.13	0.17	Admin	105	map on wall	W			good	
19-Nov-07	22	Niton XL309	0	0.02	Admin	105	wall trim	E	wood	brown	good	
19-Nov-07	23	Niton XL309	0	0.06	Admin	107C	wall	W	sheetrock	cow	good	
19-Nov-07	24	Niton XL309	0.01	0.06	Admin	105	wall	W	wood	wallpaper	good	
20-Nov-07	25	Niton XL309			Admin	Shutter Cal						
20-Nov-07	26	Niton XL309	25.55	3.83	Admin	Exterior	window casing	S	wood	brown	good	
20-Nov-07	27	Niton XL309	0.11	0.22	Admin	Exterior	window panel	S	wood	brown	good	
20-Nov-07	28	Niton XL309			Admin	Shutter Cal						
29-Nov-07	1	Niton XL309			Admin	Shutter Cal						
29-Nov-07	2	Niton XL309	0	0.01	Admin	129	wall	S	sheetrock	cow	good	
29-Nov-07	3	Niton XL309	-0.09	0.6	Admin	129	wall	E	sheetrock	cow	good	by small window
29-Nov-07	4	Niton XL309	0.14	0.11	Admin	129	wall	S	plaster	cow	poor	by doo to 129B
29-Nov-07	5	Niton XL309	0.08	0.38	Admin	129	window frame	S	wood	brown	good	between 129 & 129B
29-Nov-07	6	Niton XL309	0.06	0.17	Admin	129	door frame	S	wood	brown	poor	to 129B
29-Nov-07	7	Niton XL309	0	0.02	Admin	129	door	S	wood	stain	fair	to 129B
29-Nov-07	8	Niton XL309	0	0.08	Admin	131	wall	S	sheetrock	cow	good	
29-Nov-07	9	Niton XL309	0	0.09	Admin	SE Entry	wall	W	plaster	cow	fair	
29-Nov-07	10	Niton XL309	0.19	0.18	Admin	129B	wall	S	plaster	cow	fair	
29-Nov-07	11	Niton XL309	-0.05	0.58	Admin	129B	wall	S	plaster	cow	fair	
29-Nov-07	12	Niton XL309	0.08	0.32	Admin	129B	radiator	S	metal	cow	good	
29-Nov-07	13	Niton XL309	0.02	0.06	Admin	129B	window frame	S	metal	brown	good	to outside
29-Nov-07	14	Niton XL309	0.06	0.24	Admin	129B	wall	W	sheetrock	cow	good	
29-Nov-07	15	Niton XL309	0.21	0.55	Admin	SE Entry	wall	S	plaster	cow	fair	
29-Nov-07	16	Niton XL309	0.04	0.66	Admin	SE Entry	wall	S	plaster	cow	fair	
1-Apr-08	1	Niton XL309			Admin	Shutter Cal						
1-Apr-08	2	Niton XL309	0	0.09	Admin	Exterior SE Entry	Wall panel	N	Transite	Dk brown	Good	
1-Apr-08	3	Niton XL309	0.04	0.12	Admin	Exterior SE Entry	Panel trim	N	Wood	Dk brown	Poor	
1-Apr-08	4	Niton XL309	0.07	0.27	Admin	Exterior SE Entry	Panel trim	N	Wood	Dk brown	Poor	
1-Apr-08	5	Niton XL309	0	0.11	Admin	Exterior SE Entry	Panel trim	N	Wood	Dk brown	Poor	
1-Apr-08	6	Niton XL309	0	0.02	Admin	Exterior SE Entry	Window frame	N	Metal	Dk brown	Good	

Date	Reading	Mode	Pb	Pb +/-	Facility	Room	Feature	Side	Substrate	Color	Condition	Notes
1-Apr-08	7	Niton XL309	0.05	0.11	Admin	Exterior SE Entry	Door	N	Metal	Dk brown	Fair	
16-Jun-08	1	Niton XL309			Admin	Shutter Cal						
16-Jun-08	2	Niton XL309	1.06	0.11	Admin	Cal (1.09)	Pass					
16-Jun-08	3	Niton XL309	1.09	0.14	Admin	Exterior Fence	Upper rail	NW	Metal	Brown	Poor	
16-Jun-08	4	Niton XL309	1.24	0.17	Admin	Exterior Fence	Lower rail	NW	Metal	Brown	Poor	
16-Jun-08	5	Niton XL309	0.76	0.16	Admin	Exterior Fence	Scraped rail	NE	Metal	Brown	Poor	
16-Jun-08	6	Niton XL309	0.82	0.1	Admin	Cal (1.09)	XRF slipped					
16-Jun-08	7	Niton XL309	1.11	0.12	Admin	Cal (1.09)	Pass					
21-Jan-10	1	Standardization			Admin							
21-Jan-10	2	Industrial Paint	3.54	0.16	Admin	cal 3.76+/- 0.45						
21-Jan-10	3	Industrial Paint	0.29	0.04	Admin	cal 0.32+/- 0.03						
21-Jan-10	4	Industrial Paint	0	0	Admin	204	wall	North	Drywall	cow	Good	
21-Jan-10	5	Industrial Paint	0.48	0.08	Admin	204	wall	East	Concrete	cow	Good	
21-Jan-10	6	Industrial Paint	0.64	0.12	Admin	204	wall	East	Concrete	cow	Good	
21-Jan-10	7	Industrial Paint	0	0	Admin	204	wall	East	Drywall	cow	Good	
21-Jan-10	8	Industrial Paint	0	0	Admin	204	wall	South	Drywall	cow	Fair	
21-Jan-10	9	Industrial Paint	0.1	0.02	Admin	202	wall	West	Concrete	cow	Good	
21-Jan-10	10	Industrial Paint	0.01	0	Admin	202	wall window	East	Glass	white	Poor	
21-Jan-10	11	Industrial Paint	0.05	0.02	Admin	202	floor base	West	Wood	stain	Fair	
21-Jan-10	12	Industrial Paint	0.03	0.01	Admin	202	floor base	West	Wood	stain	Fair	
17-Jun-10	1	Standardization			Admin							
17-Jun-10	2	Industrial Paint	5	0.24	Admin	auditorium exterior	window sash	South	Wood	dk brown	Poor	
17-Jun-10	3	Industrial Paint	1.43	0.11	Admin	auditorium exterior	window sill	South	Wood	dk brown	Poor	
17-Jun-10	4	Industrial Paint	5	0.41	Admin	auditorium exterior	window moulding	South	Wood	dk brown	Poor	
17-Jun-10	5	Industrial Paint	5	0.41	Admin	auditorium exterior	window moulding	South	Wood	dk brown	Poor	
17-Jun-10	6	Industrial Paint	5	0.24	Admin	auditorium exterior	window solder	South	Wood	dk brown	Poor	
7-Oct-11	1	Standardization			Admin							
7-Oct-11	2	Lead Paint Fixed-Time	1.57	0.12	Admin	cal 1.57 +/- 0.14						
7-Oct-11	3	Lead Paint Fixed-Time	3.12	0.18	Admin	002 chase behind urinals	wall	E	plaster	rust brown		
7-Oct-11	4	Lead Paint Fixed-Time	3.34	0.17	Admin	002 chase behind urinals	wall	E	plaster	yellow		
7-Oct-11	5	Lead Paint Fixed-Time	2.72	0.22	Admin	002 mens restroom	wall	E	plaster	cow		
7-Oct-11	6	Lead Paint Fixed-Time	2.47	0.34	Admin	104F	wall	E	concrete	cow		
7-Oct-11	7	Lead Paint Fixed-Time	1	0.21	Admin	204	wall	E	concrete	cow		
7-Oct-11	8	Lead Paint Fixed-Time	0	0	Admin	204	wall	E	drywall	cow		
7-Oct-11	9	Lead Paint Fixed-Time	0.42	0.06	Admin	cal 0.32 +/- 0.03						
26-Jan-12	1	Standardization			Admin							

Date	Reading	Mode	Pb	Pb +/-	Facility	Room	Feature	Side	Substrate	Color	Condition	Notes
26-Jan-12	2	Industrial Paint	1.13	0.09	Admin	cal 1.09 +/- 0.09						
26-Jan-12	3	Industrial Paint	0	0	Admin	101 E entry lobby	wall	West	Drywall	beige	Good	
26-Jan-12	4	Industrial Paint	0	0	Admin	101 E entry lobby	wall column	West	Wood	beige	Good	
26-Jan-12	5	Industrial Paint	5	0.44	Admin	101 E entry lobby	wall	West	Concrete	beige	Good	
26-Jan-12	6	Industrial Paint	0	0.01	Admin	101 E entry lobby	wall	West	Concrete	tan	Good	
26-Jan-12	7	Industrial Paint	0.01	0.01	Admin	101 E entry lobby	wall	West	Concrete	tan	Good	
27-Jun-12	1	Standardization			Admin							
27-Jun-12	2	Industrial Paint	1.17	0.06	Admin	cal 1.09+/- 0.09						
27-Jun-12	3	Industrial Paint	0.02	0.01	Admin	342	ceiling	West	Plaster	cow	Good	
27-Jun-12	4	Industrial Paint	0.07	0.02	Admin	342	ceiling	East	Plaster	cow	Good	
27-Jun-12	5	Industrial Paint	0	0	Admin	342	wall	South	Plaster	cow	Good	
27-Jun-12	6	Industrial Paint	0.05	0.01	Admin	338D	ceiling		Plaster	cow	Good	
27-Jun-12	7	Industrial Paint	0	0	Admin	347	ceiling		Plaster	cow	Good	
27-Jun-12	8	Industrial Paint	0	0	Admin	347	ceiling tile 2x2		Cellulose	white	Good	
27-Jun-12	9	Industrial Paint	0	0	Admin	333	ceiling tile 1x1		Cellulose	white	Good	
27-Jun-12	10	Industrial Paint	0.14	0.03	Admin	338	wall	North	Plaster	cow	Poor	
27-Jun-12	11	Industrial Paint	0.32	0.04	Admin	cal 0.32+/- 0.03						

SECTION 011000 - SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: University of Idaho Administration Building Entry Foyer and Main Stair Renovation.

B. Owner's Name: State of Idaho - Division of Public Works.

C. Agency's Name: University of Idaho.

D. Architect's Name: CSHQA, a professional association.

E. Mechanical Engineer: MW Consulting Engineers.

F. Fire Protection Engineer: Fire Protection Engineering.

G. Electrical Engineer: MW Consulting Engineers.

H. The Project consists of the renovation of the Administration Building Foyer and North Stair to retain, restore and improve the historic character of the Administration Building while making repairs and improvements to the life safety systems and worn architectural systems and finishes. .

1.02 CONTRACT DESCRIPTION

A. Contract Type: A single prime contract based on a Fixed Price.

1.03 DESCRIPTION OF ALTERATIONS WORK

A. Scope of demolition and removal work is shown on drawings and specified in Section 024100.

B. Scope of alterations work is shown on drawings and includes:
   1. Removal of non-original construction--two closets on the second floor balcony, the doors leading to the north and south hallways on the first, second, and third floors, and acoustical tile ceilings.
   2. Restoration of original materials and finishes including marble, terrazzo, plaster, wood and paint.
   3. Restoration of the historic plaster arches leading to the first, second and third floor corridors.
   4. Installation of new gypsum veneer plaster ceilings within the corridors.
   5. Installation of new code compliant handrails and guardrails behind the historic guardrails to bring the stairs up to code.
   6. Updating and concealing the existing fire sprinkler, fire alarm, electrical and mechanical systems within the walls and above the ceilings.
   7. Renewal and repair of the north exterior entry stairs and tile mosaic seal including rehabilitating the mosaic, remal and replacement of the bottom granite step, reworking the foundation under the stairs and adding new code compliant handrails.
   8. Installation of a well lit ADA compliant temporary interior enclosure, on all three floors, connecting the South side of the building to the North side via the Foyer for exiting.

C. Plumbing: Alter existing system and add new construction, keeping existing in operation.

D. HVAC: Alter existing system and add new construction, keeping existing in operation.

E. Electrical Power and Lighting: Alter existing system and add new construction, keeping existing in operation.

F. Fire Suppression Sprinklers: Alter existing system and add new construction, keeping existing in operation.

G. Fire Alarm: Alter existing system and add new construction, keeping existing in operation.

H. Contractor shall remove and deliver the following to Owner prior to start of work:
   1. Items indicated on Drawings..

1.04 WORK BY OWNER

A. Items noted NIC (Not in Contract) will be supplied and installed by Owner before Substantial Completion.

B. Owner will supply and install the following:
   1. Wireless access points.
   2. Telecommunications cabling.
   3. Telecommunications faceplates.

1.05 OWNER OCCUPANCY

A. Owner intends to occupy portions of the existing building during the entire construction period. Accessibility shall be maintained throughout the project via an ADA compliant tunnel and other means through the project site on all floors allowing all occupants and visitors access to the North and South wings of the building and accessible elevator location in the South wing.

B. Owner intends to occupy the Project upon Substantial Completion.

C. Cooperate with Owner to minimize conflict and to facilitate Owner's operations.

D. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:
   1. Owner occupancy.
   2. Use of site and premises by the public.

C. Provide access to and from site as required by law and by University of Idaho.
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Existing building spaces may not be used for storage.

E. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the building is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 7 days notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

F. Nonsmoking Building: Smoking is not permitted within the building or on University of Idaho property.

G. Noise, Vibration and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to building tenants with University of Idaho facilities project contact.
   1. Notify Architect and Agency not less than five business days in advance of proposed disruptive operations.
   2. Obtain Architect's and Agency's written permission before proceeding with disruptive operations.

H. Controlled Substances: Use of tobacco products and other controlled substances within the existing building or on the University of Idaho campus is not permitted.

1.07 WORK SEQUENCE

A. Construct Work in stages during the construction period:
   1. Stage 1: Notice to Proceed will stipulate on-site consruction work to begin and be completed within fifty-five (55) consecutive calendar days for the north exterior stairs and full fire suppression system.
   2. Stage 2: Substantial Completion of remaining work shall be completed within one-hundred and fifteen (115) consecutive calendar days from Notice to Proceed..

B. Coordinate construction schedule and operations with Owner.

1.08 SPECIFICATION SECTIONS APPLICABLE TO ALL CONTRACTS

A. Unless otherwise noted, all provisions of the sections listed below apply to all contracts. Specific items of work listed under individual contract descriptions constitute exceptions.

B. Section 012000 - Price and Payment Procedures.

C. Section 012300 - Alternates.

D. Section 013000 - Administrative Requirements.

E. Section 014000 - Quality Requirements.

F. Section 014219 - Reference Standards.

G. Section 015000 - Temporary Facilities and Controls.

H. Section 016000 - Product Requirements.

I. Section 017000 - Execution and Closeout Requirements.

J. Section 017310 - Cutting and Patching

K. Section 017800 - Closeout Submittals

L. Section 017900 Demonstration and Training

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 011000

SECTION 012000 - PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Sum and Contract Time.

C. Change procedures.

D. Procedures for preparation and submittal of application for final payment.

1.02 RELATED REQUIREMENTS

A. Drawings and General provisions of the Contract, including Division 1 Specification Sections.

1.03 SCHEDULE OF VALUES

A. Form to be used: AIA G703.

B. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit draft to Architect for approval.

C. Forms filled out by hand will not be accepted.

D. Submit Schedule of Values electronically within 15 days after date of Owner-Contractor Agreement.

E. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section.

F. Include in each line item, the amount of Allowances specified in this section.

G. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

H. Revise schedule to list approved Change Orders, with each Application For Payment.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used: Pay request (front page) available on DPW website. AIA Schedule of Values accepted.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.
   11. Project closeout.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed and for stored products.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

I. Submit one copy of each Application for Payment. All signatures shall be in a non-black ink.

J. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 013000.
   2. Construction progress schedule, revised and current as specified in Section 013000.
   3. Partial release of liens from major Subcontractors and vendors.
   4. Affidavits attesting to off-site stored products.

K. When Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.05 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.

B. For minor changes not involving an adjustment to the Contract Sum or Contract Time, Architect will issue instructions directly to Contractor.

C. For other required changes, Architect will issue a document signed by Owner instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Sum or Contract Time.
   2. Promptly execute the change.

D. For changes for which advance pricing is desired, Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 10 days.

E. Contractor may propose a change by submitting a request for change to Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Sum and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 016000.

F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Architect.
   3. For change ordered by Architect without a quotation from Contractor, the amount will be determined by Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

G. Substantiation of Costs: Provide full information required for evaluation.
   1. Provide the following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.
   2. Support each claim for additional costs with additional information:
      a. Origin and date of claim.
      b. Dates and times work was performed, and by whom.
      c. Time records and wage rates paid.
      d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.

3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

H. Execution of Change Orders: Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Sum.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Sum, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
1. Evidence of completion of Project closeout requirements.
2. Updated final statement accouting for final changes to the Contract Sum..
3. AIA Document G706 "Contractor's Affidavit of Payment of Debts and Claims"..
4. AIA Document G707 "Consent to Surety to Final Payment".

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 012000

SECTION 012300 - ALTERNATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Description of Alternates.

B. Procedures for pricing Alternates.

C. Documentation of changes to Contract Price and Contract Time.

1.02 RELATED REQUIREMENTS

1.03 ACCEPTANCE OF ALTERNATES

A. Alternates quoted on Bid Forms will be reviewed and accepted or rejected at Owner's option. Accepted Alternates will be identified in the Owner-Contractor Agreement.

B. Coordinate related work and modify surrounding work to integrate the Work of each Alternate.

1.04 SCHEDULE OF ALTERNATES

A. Alternate No. 1 - Fire Sprinkler Upgrades:
   1. Base Bid Item: All fire sprinkler system modifications associated with the First Floor Foyer 101 and Stairs; Second Floor Hallway 200, Balcony 205M and Stairs.
   2. Alternate Item: All work associated with new fire sprinkler installation in the following locations as indicated on Drawings. Work shall be completed as a separate design-build project. Provide engineered fire sprinkler drawings.
      a. Provide new sprinkler heads above the ceiling in the First Floor South Wing Corridor.
      b. Provide two new sprinkler heads above the ceiling in the Main north/south Corridor on the First Floor where the ceiling transitions from no ceiling to a suspended ceiling.
      c. Provide new sprinkler heads above the ceiling in the Second Floor south wing corridor.

B. Alternate No. 2 - Third Floor Repairs and Restoration:
   1. Base Bid Item: All work indicated at the stair from the second to the third floor, work associated with the exterior wood windows (see Alternate No. 1), work associated with third floor plaster repair (See Alternate No. 3), third floor east new wall outlet.
   2. Alternate Item: All work shown on the Third Floor including paint stripping from decorated tooled plaster, painting on interior walls; installing new hardware where original hardware is missing; refinishing existing hardware; removing paint from existing sandstone around windows; replacing section of missing marble, removing existing non-original acoustic tile ceilings, restoring existing plaster ceilings, removing existing corridor doors, removing and refinishing wood doors; stripping paint from existing wood base and re-staining wood; and mechanical, electrical, fire protection, work not part of Base Bid.

C. Alternate No. 3 - Plaster Restoration at Third Floor:
   1. Alternate Item: All plaster repair work shown on the third floor as indicated on Drawings.

D. Alternate No. 4 - Repair and restoration of exterior wood windows and Foyer 101 Main Entry Door.:
   1. Base bid Item: Repair and restoration of sandstone surround at windows on all floors.
   2. Alternate Items: Refinish wood windows; replace broken glass; replace two non-original double hung windows on third floor with two new casement windows to match existing historic windows; install hold opens that allow windows to be opened 4". Refinish Foyer 101 Main Entry door as indicated in the door schedule.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 012300

SECTION 013000 - ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Construction progress schedule.

D. Coordination drawings.

E. Submittals for review, information, and project closeout.

F. Submittal procedures.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division I Specification Sections.

B. Section 013216 - Construction Progress Schedule: Form, content, and administration of schedules.

C. Section 017000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 017800 - Closeout Submittals: Project record documents.

1.03 PROJECT COORDINATION

A. Cooperate with the Project Coordinator in allocation of mobilization areas of site; for field offices, site access, traffic, and parking facilities.

B. During construction, coordinate use of site and facilities through the Project Coordinator.

C. Comply with Project Coordinator's procedures for intra-project communications; submittals, reports and records, schedules, coordination drawings, and recommendations; and resolution of ambiguities and conflicts.

D. Comply with instructions of the Project Coordinator for use of temporary utilities and construction facilities.

E. Coordinate field engineering and layout work under instructions of the Project Coordinator.

F. Make the following types of submittals to Architect through the Project Coordinator:
   1. Requests for interpretation.
   2. Requests for substitution.
   3. Shop drawings, product data, and samples.
   4. Test and inspection reports.
   5. Design data.
   6. Manufacturer's instructions and field reports.
   7. Applications for payment and change order requests.
   8. Progress schedules.
   9. Coordination drawings.
   10. Correction Punch List and Final Correction Punch List for Substantial Completion.
   11. Closeout submittals.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. Owner will schedule a meeting after Notice of Award.

B. Attendance Required:
   1. Owner.
   2. Architect.
   3. Contractor.
   4. DPW Field Representative.

C. Agenda:
   1. Execution of Owner-Contractor Agreement.
   2. Submission of executed bonds and insurance certificates.
   3. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
   4. Designation of personnel representing the parties to Contract and Architect.
   5. Use of premises by Owner and Contractor.
   6. Temporary facilities and controls.
   7. Equipment deliveries and priorities.
   8. Working hours.
   9. Parking availability.
   10. Security and housekeeping procedures.
   11. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
   12. Scheduling.
   13. Procedures for maintaining record documents.

D. Architect will record minutes and distribute copies within [two] days after meeting to participants.

3.02 PROGRESS MEETINGS

A. Architect will schedule and administer meetings throughout progress of the Work at monthly intervals.

B. Attendance Required: Job superintendent, major Subcontractors and suppliers, Owner, Architect, as appropriate to agenda topics for each meeting.

C. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Maintenance of progress schedule.
   7. Corrective measures to regain projected schedules.
   8. Planned progress during succeeding work period.
   9. Maintenance of quality and work standards.
   10. Effect of proposed changes on progress schedule and coordination.
   11. Other business relating to Work.

D. Architect will record minutes and distribute copies within two days after meeting to participants, with copies to Architect, Owner, participants, and those affected by decisions made.

3.03 CONSTRUCTION PROGRESS SCHEDULE

A. Within 10 days after date of the Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

3.04 COORDINATION DRAWINGS

3.05 SUBMITTALS FOR REVIEW

A. When the following are specified in individual sections, submit them for review:

1. Product data.
2. Shop drawings.
3. Samples for selection.
4. Samples for verification.

B. Submit to Architect for review for the limited purpose of checking for conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 017800 - Closeout Submittals.

3.06 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
1. Design data.
2. Certificates.
3. Test reports.
4. Inspection reports.
5. Manufacturer's instructions.
6. Manufacturer's field reports.
7. Other types indicated.

B. Submit for Architect's knowledge as contract administrator or for Owner. No action will be taken.

3.07 SUBMITTALS FOR PROJECT CLOSEOUT

A. Submit Correction Punch List for Substantial Completion.

B. Submit Final Correction Punch List for Substantial Completion.

C. When the following are specified in individual sections, submit them at project closeout:
1. Project record documents.
2. Operation and maintenance data.
3. Warranties.
4. Bonds.
5. Other types as indicated.

D. Submit for Owner's benefit during and after project completion.

3.08 NUMBER OF COPIES OF SUBMITTALS

A. Electronic Documents: Submit one electronic copy in PDF format; an electronically-marked up file will be returned. Create PDFs at native size and right-side up; illegible files will be rejected.

B. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
1. Retained samples will not be returned to Contractor unless specifically so stated.

3.09 SUBMITTAL PROCEDURES

A. Shop Drawing Procedures:
1. Prepare accurate, drawn-to-scale, original shop drawing documentation by interpreting the Contract Documents and coordinating related Work.
2. Do not reproduce the Contract Documents to create shop drawings.
3. Generic, non-project specific information submitted as shop drawings do not meet the requirements for shop drawings.

B. Transmit each submittal with a copy of approved submittal form.

C. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.

D. Identify Project, Contractor, Subcontractor or supplier; pertinent drawing and detail number, and specification section number, as appropriate on each copy.

E. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.

F. Schedule submittals to expedite the Project, and coordinate submission of related items.

G. For each submittal for review, allow 10 days excluding delivery time to and from the Contractor.

H. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.

I. Provide space for Contractor and Architect review stamps.

J. When revised for resubmission, identify all changes made since previous submission.

K. Distribute reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

L. Submittals not requested will not be recognized or processed.

END OF SECTION 013000

SECTION 013216 - CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, with network analysis diagrams and reports.

1.02 RELATED SECTIONS

A. Section 011000 - Summary: Work sequence.

1.03 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit electronic copy of schedule.

1.04 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.05 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Sheet Size: Multiples of 8-1/2 x 11 inches (216 x 280 mm).

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Provide sub-schedules for each stage of Work identified in Section 011000.

E. Provide sub-schedules to define critical portions of the entire schedule.

F. Include conferences and meetings in schedule.

G. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

H. Provide separate schedule of submittal dates for shop drawings, product data, and samples, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.

I. Coordinate content with schedule of values specified in Section 012000 - Price and Payment Procedures.

J. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first work day of each week.

3.04 NETWORK ANALYSIS

A. Prepare network analysis diagrams and supporting mathematical analyses using the Critical Path Method.

B. Illustrate order and interdependence of activities and sequence of work; how start of a given activity depends on completion of preceding activities, and how completion of the activity may restrain start of subsequent activities.

C. Mathematical Analysis: Tabulate each activity of detailed network diagrams, using calendar dates, and identify for each activity:
   1. Preceding and following event numbers.
   2. Activity description.
   3. Estimated duration of activity, in maximum 15 day intervals.
   4. Earliest start date.
   5. Earliest finish date.
   6. Actual start date.
   7. Actual finish date.
   8. Latest start date.
   9. Latest finish date.
   10. Total and free float; float time shall accrue to Owner and to Owner's benefit.
   11. Monetary value of activity, keyed to Schedule of Values.
   12. Percentage of activity completed.
   13. Responsibility.

D. Analysis Program: Capable of compiling monetary value of completed and partially completed activities, accepting revised completion dates, and recomputation of all dates and float.

E. Required Reports: List activities in sorts or groups:
   1. By preceding work item or event number from lowest to highest.
   2. By amount of float, then in order of early start.
   3. Listing of activities on the critical path.

3.05 REVIEW AND EVALUATION OF SCHEDULE

A. Participate in joint review and evaluation of schedule with Architect at each submittal.

B. Evaluate project status to determine work behind schedule and work ahead of schedule.

C. After review, revise as necessary as result of review, and resubmit within 10 days.

3.06 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Update diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect including the effects of changes on schedules of separate contractors.

3.07 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file or electronically, to Subcontractors, suppliers, Architect, Owner.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION 013216

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. References and standards.

B. Quality assurance submittals.

C. Mock-ups.

D. Control of installation.

E. Tolerances.

F. Testing and inspection services.

G. Manufacturers' field services.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division I Specification Sections.

B. Section 013000 - Administrative Requirements: Submittal procedures.

C. Section 014216 - Definitions.

D. Section 014219 - Reference Standards.

E. Section 016000 - Product Requirements: Requirements for material and product quality.

1.03 SUBMITTALS

A. Testing Agency Qualifications:
   1. Prior to start of Work, submit agency name, address, and telephone number, and names of full time registered Engineer and responsible officer.
   2. Submit copy of report of laboratory facilities inspection made by NIST Construction Materials Reference Laboratory during most recent inspection, with memorandum of remedies of any deficiencies reported by the inspection.
   3. Qualification Statement: Provide documentation showing testing laboratory is accredited under IAS AC89.

B. Design Data: Submit for Architect's knowledge as contract administrator for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents, or for Owner's information.

C. Test Reports: After each test/inspection, promptly submit electronic copy of report to Architect and to Contractor.
   1. Include:
      a. Date issued.
      b. Project title and number.
      c. Name of inspector.
      d. Date and time of sampling or inspection.
      e. Identification of product and specifications section.
      f. Location in the Project.
      g. Type of test/inspection.
      h. Date of test/inspection.
      i. Results of test/inspection.
      j. Conformance with Contract Documents.
      k. When requested by Architect, provide interpretation of results.

D. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.

2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

E. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

F. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

1.04 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 TESTING AND INSPECTION AGENCIES

A. As indicated in individual specification sections, Owner or Contractor shall employ and pay for services of an independent testing agency to perform other specified testing.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 MOCK-UPS

A. Before installing portions of the Work where mockups are required, construct mockups in location and size indicated for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work. The purpose of mock-up is to demonstrate the proposed range of aesthetic effects and workmanship.

B. Accepted mock-ups establish the standard of quality the Architect will use to judge the Work.

C. Notify Architect and _____ Consultant fifteen (15) working days in advance of dates and times when mockups will be constructed.

D. Provide supervisory personnel who will oversee mockup construction. Provide workers that will be employed during the construction at Project.

E. Tests shall be performed under provisions identified in this section and identified in the respective product specification sections.

F. Assemble and erect specified items with specified attachment and anchorage devices, flashings, seals, and finishes.

G. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
   1. Architect will issue written comments within seven (7) working days of initial review and each subsequent follow up review of each mockup.
   2. Make corrections as necessary until Architect's approval is issued.

H. Accepted mock-ups shall be a comparison standard for the remaining Work.

I. Where mock-up has been accepted by Architect and is specified in product specification sections to be removed, protect mock-up throughout construction, remove mock-up and clear area when directed to do so by Architect.

3.03 TOLERANCES

A. Monitor fabrication and installation tolerance control of products to produce acceptable Work. Do not permit tolerances to accumulate.

B. Comply with manufacturers' tolerances. Should manufacturers' tolerances conflict with Contract Documents, request clarification from Architect before proceeding.

C. Adjust products to appropriate dimensions; position before securing products in place.

3.04 TESTING AND INSPECTION

A. See individual specification sections for testing and inspection required.

B. Testing Agency Duties:
   1. Provide qualified personnel at site. Cooperate with Architect and Contractor in performance of services.
   2. Perform specified sampling and testing of products in accordance with specified standards.
   3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
   4. Promptly notify Architect and Contractor of observed irregularities or non-conformance of Work or products.
   5. Perform additional tests and inspections required by Architect.
   6. Submit reports of all tests/inspections specified.

C. Limits on Testing/Inspection Agency Authority:
   1. Agency may not release, revoke, alter, or enlarge on requirements of Contract Documents.
   2. Agency may not approve or accept any portion of the Work.
   3. Agency may not assume any duties of Contractor.
   4. Agency has no authority to stop the Work.

D. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.

2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
3. Provide incidental labor and facilities:
    a. To provide access to Work to be tested/inspected.
    b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
    c. To facilitate tests/inspections.
    d. To provide storage and curing of test samples.
4. Notify Architect and laboratory 24 hours prior to expected time for operations requiring testing/inspection services.
5. Employ services of an independent qualified testing laboratory and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.
6. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

E. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

3.05 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.

B. Submit qualifications of observer to Architect 10 days in advance of required observations.
    1. Observer subject to approval of Architect.

C. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.06 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION 014000

SECTION 014216 - DEFINITIONS

PART 1 GENERAL

1.01 SUMMARY

A. This section supplements the definitions contained in the General Conditions.

B. Other definitions are included in individual specification sections.

1.02 DEFINITIONS

A. Furnish: To supply, deliver, unload, and inspect for damage.

B. Install: To unpack, assemble, erect, apply, place, finish, cure, protect, clean, start up, and make ready for use.

C. Product: Material, machinery, components, equipment, fixtures, and systems forming the work result. Not materials or equipment used for preparation, fabrication, conveying, or erection and not incorporated into the work result. Products may be new, never before used, or re-used materials or equipment.

D. Project Manual: The book-sized volume that includes the procurement requirements (if any), the contracting requirements, and the specifications.

E. Provide: To furnish and install.

F. Supply: Same as Furnish.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 014216

SECTION 014219 - REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division I Specification Sections.

1.03 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Obtain copies of standards when required by the Contract Documents.

C. Maintain copy at project site during submittals, planning, and progress of the specific work, until Date of Substantial Completion.

D. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

E. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 CONSTRUCTION INDUSTRY ORGANIZATION DOCUMENTS

2.01 AA -- ALUMINUM ASSOCIATION, INC.

2.02 AABC -- ASSOCIATED AIR BALANCE COUNCIL

2.03 AAMA -- AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION

2.04 AASHTO -- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

2.05 AATCC -- AMERICAN ASSOCIATION OF TEXTILE CHEMISTS & COLORISTS

2.06 ABMA -- AMERICAN BEARING MANUFACTURERS ASSOCIATION, INC.

2.07 ACA -- AMERICAN COATINGS ASSOCIATION

2.08 ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

2.09 ACT

2.10 ADC -- AIR DIFFUSION COUNCIL

2.11 AFPA -- AMERICAN FOREST AND PAPER ASSOCIATION

2.12 AGA -- AMERICAN GALVANIZERS ASSOCIATION, INC.

2.13 AGC -- ASSOCIATED GENERAL CONTRACTORS OF AMERICA

2.14 AGMA -- AMERICAN GEAR MANUFACTURERS ASSOCIATION

2.15 AHA -- AMERICAN HARDBOARD ASSOCIATION

2.16 AHRI -- AIR-CONDITIONING, HEATING, AND REFRIGERATION INSTITUTE

2.17 AI -- THE ASPHALT INSTITUTE

2.18 AIA -- THE AMERICAN INSTITUTE OF ARCHITECTS

2.19 AISC -- AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

2.20 AISI -- AMERICAN IRON AND STEEL INSTITUTE

2.21 AIST -- ASSOCIATION FOR IRON AND STEEL TECHNOLOGY

2.22 AITC -- AMERICAN INSTITUTE OF TIMBER CONSTRUCTION

2.23 ALI -- AMERICAN LADDER INSTITUTE

2.24 ALSC -- AMERICAN LUMBER STANDARDS COMMITTEE

2.25 AMCA -- AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

2.26 ANSI -- AMERICAN NATIONAL STANDARDS INSTITUTE

2.27 APA -- APA - THE ENGINEERED WOOD ASSOCIATION

2.28 APHA -- AMERICAN PUBLIC HEALTH ASSOCIATION

2.29 API -- AMERICAN PETROLEUM INSTITUTE

2.30 API -- ALLIANCE FOR THE POLYURETHANES INDUSTRY, AMERICAN PLASTICS COUNCIL

2.31 ARI -- AIR-CONDITIONING AND REFRIGERATION INSTITUTE (SEE AHRI)

2.32 ARPM - RUBBER MANUFACTURERS ASSOCIATION

2.33 ARRA -- ASPHALT RECYCLING AND RECLAIMING ASSOCIATION

2.34 ASA -- ACOUSTICAL SOCIETY OF AMERICA

2.35 ASCA -- ARCHITECTURAL SPRAY COATERS ASSOCIATION

2.36 ASCE -- AMERICAN SOCIETY OF CIVIL ENGINEERS

2.37 ASHRAE -- AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS, INC.

2.38 ASME -- THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

2.39 ASPA -- AMERICAN SOD PRODUCERS ASSOCIATION (SEE TURFGRASS PRODUCERS INTERNATIONAL)

2.40 ASSE -- AMERICAN SOCIETY OF SANITARY ENGINEERING

2.41 ASTM A SERIES -- ASTM INTERNATIONAL

2.42 ASTM B SERIES -- ASTM INTERNATIONAL

2.43 ASTM C SERIES -- ASTM INTERNATIONAL

2.44 ASTM D SERIES -- ASTM INTERNATIONAL

2.45 ASTM E SERIES -- ASTM INTERNATIONAL

2.46 ASTM F SERIES -- ASTM INTERNATIONAL

2.47 ASTM G SERIES -- ASTM INTERNATIONAL

2.48 AWCI -- ASSOCIATION OF THE WALL AND CEILING INDUSTRIES INTERNATIONAL

2.49 AWI/AWMAC/WI -- JOINT PUBLICATION OF ARCHITECTURAL WOODWORK INSTITUTE/ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA/WOODWORK INSTITUTE

2.50 AWMAC -- ARCHITECTURAL WOODWORK MANUFACTURERS ASSOCIATION OF CANADA

2.51 AWPA -- AMERICAN WOOD-PRESERVERS' ASSOCIATION

2.52 AWPB -- AMERICAN WOOD PRESERVERS BUREAU

2.53 AWS -- AMERICAN WELDING SOCIETY

2.54 AWWA -- AMERICAN WATER WORKS ASSOCIATION

2.55 BHMA -- BUILDERS HARDWARE MANUFACTURERS ASSOCIATION

2.56 BIA -- BRICK INDUSTRY ASSOCIATION

2.57 BIFMA -- BUSINESS AND INSTITUTIONAL FURNITURE MANUFACTURERS ASSOCIATION

2.58 BOCA -- BUILDING OFFICIALS & CODE ADMINISTRATORS INTERNATIONAL, INC.

2.59 BOMA -- BUILDING OWNERS AND MANAGERS ASSOCIATION:

2.60 C2C -- CRADLE TO CRADLE PRODUCTS INNOVATION INSTITUTE

2.61 CABO -- COUNCIL OF AMERICAN BUILDING OFFICIALS:

2.62 CEA -- CONSUMER ELECTRONICS ASSOCIATION

2.63 CHPS -- COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS

2.64 CISCA -- CEILINGS & INTERIOR SYSTEMS CONSTRUCTION ASSOCIATION

2.65 CISPI -- CAST IRON SOIL PIPE INSTITUTE

2.66 CLFMI -- CHAIN LINK FENCE MANUFACTURERS INSTITUTE

2.67 CPA -- COMPOSITE PANEL ASSOCIATION

2.68 CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION

2.69 CRI -- CARPET AND RUG INSTITUTE

2.70 CRSI -- CONCRETE REINFORCING STEEL INSTITUTE

2.71 CSI/CSC -- CONSTRUCTION SPECIFICATIONS INSTITUTE/CONSTRUCTION SPECIFICATIONS CANADA

2.72 CTI -- CERAMIC TILE INSTITUTE

2.73 CTI -- COOLING TECHNOLOGY INSTITUTE

2.74 DASMA -- DOOR & ACCESS SYSTEMS MANUFACTURERS' ASSOCIATION, INTERNATIONAL

2.75 DHI -- DOOR AND HARDWARE INSTITUTE

2.76 EIA -- ELECTRONIC INDUSTRIES ALLIANCE

2.77 EIMA -- EXTERIOR INSULATION MANUFACTURERS ASSOCIATION

2.78 EJMA -- EXPANSION JOINT MANUFACTURERS ASSOCIATION

2.79 FM -- FACTORY MUTUAL RESEARCH CORPORATION

2.80 GA -- GYPSUM ASSOCIATION

2.81 GANA -- GLASS ASSOCIATION OF NORTH AMERICA

2.82 GRI -- GEOSYNTHETIC RESEARCH INSTITUTE

2.83 HI -- THE HYDRONICS INSTITUTE (SEE AHRI)

2.84 ICBO -- INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS

2.85 ICBO-ES -- ICBO EVALUATION SERVICE, INC.

2.86 ICC -- INTERNATIONAL CODE COUNCIL, INC.

2.87 ICC-ES -- ICC EVALUATION SERVICE, INC.

2.88 ICEA -- INSULATED CABLE ENGINEERS ASSOCIATION

2.89 IEC -- INTERNATIONAL ELECTROTECHNICAL COMMISSION

2.90 IEEE -- INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS

2.91 IES/IESNA -- ILLUMINATING ENGINEERING SOCIETY

2.92 IGMA -- INSULATING GLASS MANUFACTURERS ALLIANCE

2.93 ISS -- IRON AND STEEL SOCIETY

2.94 ISSFA - INTERNATIONAL SOLID SURFACE FABRICATORS ASSOCIATION

2.95 ITS -- INTERTEK TESTING SERVICES NA, INC.

2.96 KCMA -- KITCHEN CABINET MANUFACTURERS ASSOCIATION

2.97 LPI -- LIGHTNING PROTECTION INSTITUTE

2.98 MBMA -- METAL BUILDING MANUFACTURERS ASSOCIATION

2.99 MFMA -- MAPLE FLOORING MANUFACTURERS ASSOCIATION

2.100 MIA -- MARBLE INSTITUTE OF AMERICA, INC.

2.101 MPI -- MASTER PAINTERS INSTITUTE (MASTER PAINTERS AND DECORATORS ASSOCIATION)

2.102 MSS -- MANUFACTURERS STANDARDIZATION SOCIETY OF THE VALVE AND FITTINGS INDUSTRY, INC.

2.103 NAAMM -- THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

2.104 NACE -- NACE INTERNATIONAL

2.105 NAMM -- NATIONAL ASSOCIATION OF MIRROR MANUFACTURERS

2.106 NBGQA -- NATIONAL BUILDING GRANITE QUARRIES ASSOCIATION, INC.

2.107 NCMA -- NATIONAL CONCRETE MASONRY ASSOCIATION

2.108 NEBB -- NATIONAL ENVIRONMENTAL BALANCING BUREAU

2.109 NECA -- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION

2.110 NELMA -- NORTHEASTERN LUMBER MANUFACTURERS ASSOCIATION, INC.

2.111 NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

2.112 NETA -- INTERNATIONAL ELECTRICAL TESTING ASSOCIATION

2.113 NFPA -- NATIONAL FIRE PROTECTION ASSOCIATION

2.114 NFRC -- NATIONAL FENESTRATION RATING COUNCIL, INC.

2.115 NHLA -- NATIONAL HARDWOOD LUMBER ASSOCIATION

2.116 NLGA -- NATIONAL LUMBER GRADES AUTHORITY (CANADA)

2.117 NOFMA -- NATIONAL OAK FLOORING MANUFACTURERS ASSOCIATION

2.118 NPA -- NATIONAL PARTICLEBOARD ASSOCIATION

2.119 NPCA -- NATIONAL PAINT AND COATINGS ASSOCIATION

2.120 NRCA -- NATIONAL ROOFING CONTRACTORS ASSOCIATION

2.121 NSF -- NSF INTERNATIONAL (THE PUBLIC HEALTH AND SAFETY ORGANIZATION)

2.122 NTMA -- NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC., THE

2.123 NTMA -- NATIONAL TILE AND MARBLE ASSOCIATION

2.124 NWFA -- NATIONAL WOOD FLOORING ASSOCIATION

2.125 NWWDA -- NATIONAL WOOD WINDOW AND DOOR ASSOCIATION (NAME CHANGED TO WDMA)

2.126 PCA -- PORTLAND CEMENT ASSOCIATION

2.127 PCI -- PRECAST/PRESTRESSED CONCRETE INSTITUTE

2.128 PDCA -- PAINTING AND DECORATING CONTRACTORS OF AMERICA

2.129 PDI -- PLUMBING AND DRAINAGE INSTITUTE

2.130 RCSC -- RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS

2.131 RIS -- REDWOOD INSPECTION SERVICE

2.132 RFCI -- RESILIENT FLOOR COVERING INSTITUTE

2.133 SDI -- STEEL DOOR INSTITUTE

2.134 SIGMA -- SEALED INSULATING GLASS MANUFACTURERS ASSOCIATION (SEE IGMA)

2.135 SJI -- STEEL JOIST INSTITUTE

2.136 SMA -- SCREEN MANUFACTURERS ASSOCIATION

2.137 SMACNA -- SHEET METAL AND AIR CONDITIONING CONTRACTORS' NATIONAL ASSOCIATION, INC.

2.138 SSPC -- THE SOCIETY FOR PROTECTIVE COATINGS

2.139 STI -- STEEL TANK INSTITUTE

2.140 SWI -- STEEL WINDOW INSTITUTE

2.141 SWRI -- SEALANT, WATERPROOFING AND RESTORATION INSTITUTE

2.142 TCNA -- TILE COUNCIL OF NORTH AMERICA, INC.

2.143 TPI -- TRUSS PLATE INSTITUTE

2.144 UL -- UNDERWRITERS LABORATORIES INC.

2.145 USGBC -- U. S. GREEN BUILDING COUNCIL

2.146 VSI -- VINYL SIDING INSTITUTE, A DIVISION OF THE SOCIETY OF THE PLASTICS INDUSTRY, INC.

2.147 WASTEC -- WASTE EQUIPMENT TECHNOLOGY ASSOCIATION

2.148 WCMA -- WINDOW COVERING MANUFACTURERS ASSOCIATION

2.149 WDMA -- WINDOW AND DOOR MANUFACTURERS ASSOCIATION (FORMERLY NWWDA)

2.150 WI -- WOODWORK INSTITUTE

2.151 WMMPA -- WOOD MOULDING AND MILLWORK PRODUCERS ASSOCIATION

2.152 WWPA -- WESTERN WOOD PRODUCTS ASSOCIATION

PART 3 UNITED STATES GOVERNMENT AND RELATED AGENCIES DOCUMENTS

3.01 UNITED STATES CODE

3.02 CFR -- CODE OF FEDERAL REGULATIONS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

3.03 ATBCB -- US ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD (THE ACCESS BOARD)

3.04 COE -- CORPS OF ENGINEERS, U.S. ARMY

3.05 CPSC -- CONSUMER PRODUCTS SAFETY COMMISSION

3.06 DOS -- UNITED STATES DEPARTMENT OF STATE

3.07 EPA -- ENVIRONMENTAL PROTECTION AGENCY

3.08 FAA -- FEDERAL AVIATION ADMINISTRATION

3.09 FDA -- FOOD AND DRUG ADMINISTRATION

3.10 FEMA -- U.S. FEDERAL EMERGENCY MANAGEMENT AGENCY

3.11 FHWA -- FEDERAL HIGHWAY ADMINISTRATION

3.12 FS -- FEDERAL SPECIFICATIONS AND STANDARDS (GENERAL SERVICES ADMINISTRATION)

3.13 GSA -- U.S. GENERAL SERVICES ADMINISTRATION

3.14 MIL -- MILITARY SPECIFICATIONS AND STANDARDS

3.15 NIJ -- NATIONAL INSTITUTE OF JUSTICE (DEPT. OF JUSTICE)

3.16 NSA -- NATIONAL SECURITY AGENCY

3.17 PS -- PRODUCT STANDARDS

3.18 USDA -- UNITED STATES DEPARTMENT OF AGRICULTURE

3.19 USGS -- UNITED STATES GEOLOGICAL SURVEY

END OF SECTION 014219

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary utilities.

B. Temporary telecommunications services.

C. Temporary sanitary facilities.

D. Temporary Controls: Barriers, enclosures, and fencing.

E. Security requirements.

F. Vehicular access and parking.

G. Waste removal facilities and services.

H. Project identification sign.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.03 REFERENCE STANDARDS

A. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials; 2014.

B. ASTM E90 - Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements; 2009.

1.04 TEMPORARY UTILITIES

A. Owner will provide the following:
   1. Electrical power and metering, consisting of connection to existing facilities.
   2. Water supply, consisting of connection to existing facilities.

B. Use trigger-operated nozzles for water hoses, to avoid waste of water.

1.05 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Telecommunications services shall include:
   1. Windows-based personal computer dedicated to project telecommunications, with necessary software and laser printer.
   2. Telephone Land Lines: One line, minimum; one handset per line.
   3. Internet Connections: Minimum of one; DSL modem or faster.
   4. Email: Account/address reserved for project use.

1.06 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization.

B. Maintain daily in clean and sanitary condition.

1.07 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

1.08 FENCING

A. Construction: Commercial grade chain link fence.

B. Provide 6 foot (1.8 m) high fence around construction site; equip with vehicular and pedestrian gates with locks.

1.09 INTERIOR ENCLOSURES

A. Provide temporary partitions and ceilings as indicated to separate work areas from Owner-occupied areas, to prevent penetration of dust and moisture into Owner-occupied areas, and to prevent damage to existing materials and equipment.

B. Construction: Framing and gypsum board sheet materials with closed joints and sealed edges at intersections with existing surfaces:
   1. STC rating of 35 in accordance with ASTM E90.
   2. Maximum flame spread rating of 75 in accordance with ASTM E84.

C. Paint surfaces exposed to view from Owner-occupied areas.

1.10 LIGHTING

A. Provide temporary lighting that provides adequate illumination for construction operations and conditions.

1.11 SECURITY

A. Provide security and facilities to protect Work, existing facilities, and Owner's operations from unauthorized entry, vandalism, or theft.

B. Coordinate with Owner's security program.

1.12 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Designated existing on-site roads may be used for construction traffic.

E. Existing parking areas may be used for construction parking. Coordinate with Owner for exact locations.

1.13 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site periodically.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

D. Open free-fall chutes are not permitted. Terminate closed chutes into appropriate containers with lids.

1.14 PROJECT IDENTIFICATION

A. Provide project identification sign of design and construction suitable to Architect and Owner.

B. Erect on site at location established by Architect.

C. No other signs are allowed without Owner permission except those required by law.

1.15 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture .

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Locate offices a minimum distance of 30 feet (10 m) from existing and new structures.

1.16 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Procedures for Owner-supplied products.

G. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections.

1.03 SUBMITTALS

A. Proposed Products List: Submit list of major products proposed for use, with name of manufacturer, trade name, and model number of each product.
   1. Submit within 15 days after date of Agreement.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Unforeseen historic items encountered remain the property of the Owner; notify Owner promptly upon discovery; protect, remove, handle, and store as directed by Owner.

C. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site.

D. Specific Products to be Reused: The reuse of certain materials and equipment already existing on the project site is required.
   1. See drawings for items required to be salvaged for reuse and relocation.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. DO NOT USE products having any of the following characteristics:

C. Where all other criteria are met, Contractor shall give preference to products that:
   1. If used on interior, have lower emissions, as defined in Section 016116.
   2. If wet-applied, have lower VOC content, as defined in Section 016116.
   3. Have a published GreenScreen Chemical Hazard Analysis.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Instructions to Bidders specify time restrictions for submitting requests for substitutions during the bidding period. Comply with requirements specified in this section.

B. Architect will consider requests for substitutions only if received PRIOR to the bid. Requested received after that time may be considered or rejected at the discretion of the Architect.

C. Substitutions will not be considered when a product becomes unavailable through no fault of the Contractor.

D. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

E. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to Owner.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

F. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

G. Substitution Submittal Procedure:
   1. Submit electronic copy of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Architect will notify Contractor in writing of decision to accept or reject request.

3.02 OWNER-SUPPLIED PRODUCTS

A. See Section 011000 for identification of Owner-supplied products.

B. Owner's Responsibilities:
   1. Arrange for and deliver Owner reviewed shop drawings, product data, and samples, to Contractor.
   2. Arrange and pay for product delivery to site.
   3. On delivery, inspect products jointly with Contractor.
   4. Submit claims for transportation damage and replace damaged, defective, or deficient items.
   5. Arrange for manufacturers' warranties, inspections, and service.

C. Contractor's Responsibilities:

1. Review Owner reviewed shop drawings, product data, and samples.
2. Receive and unload products at site; inspect for completeness or damage jointly with Owner.
3. Handle, store, install and finish products.
4. Repair or replace items damaged after receipt.

3.03 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

C. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

D. Transport and handle products in accordance with manufacturer's instructions.

E. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

F. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

G. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage, and to minimize handling.

H. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.04 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H. Comply with manufacturer's warranty conditions, if any.

I. Do not store products directly on the ground.

J. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

K. Prevent contact with material that may cause corrosion, discoloration, or staining.

L. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

M. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION 016000

SECTION 017000 - EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition.

C. Pre-installation meetings.

D. Cutting and patching.

E. Surveying for laying out the work.

F. Cleaning and protection.

G. Starting of systems and equipment.

H. Demonstration and instruction of Owner personnel.

I. Closeout procedures, including Contractor's Correction Punch List, except payment procedures.

J. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 011000 - Summary: Limitations on working in existing building; continued occupancy; work sequence; identification of salvaged and relocated materials.

B. Section 013000 - Administrative Requirements: Submittals procedures.

C. Section 014000 - Quality Requirements: Testing and inspection procedures.

D. Section 015000 - Temporary Facilities and Controls: Temporary exterior enclosures.

E. Section 015000 - Temporary Facilities and Controls: Temporary interior partitions.

F. Section 017800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

G. Section 024100 - DEMOLITION: Demolition of whole structures and parts thereof; site utility demolition.

1.03 REFERENCE STANDARDS

A. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Survey work: Submit name, address, and telephone number of Surveyor before starting survey work.
   1. On request, submit documentation verifying accuracy of survey work.
   2. Submit a copy of site drawing signed by the Land Surveyor, that the elevations and locations of the work are in conformance with Contract Documents.
   3. Submit surveys and survey logs for the project record.

C. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences. Include design drawings and calculations for bracing and shoring.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

D. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.

5. Include in request:
    a. Identification of Project.
    b. Location and description of affected work.
    c. Necessity for cutting or alteration.
    d. Description of proposed work and products to be used.
    e. Alternatives to cutting and patching.
    f. Date and time work will be executed.

E. Project Record Documents: Accurately record actual locations of capped and active utilities.

1.05 QUALIFICATIONS

A. For demolition work, employ a firm specializing in the type of work required.
    1. Minimum of 5 years of documented experience working around historical materials such as plaster, marble, terrazzo, wood flooring, doors and trim, historical light fixtures and decorative metal.

B. For survey work, employ a land surveyor registered in Idaho and acceptable to Architect. Submit evidence of Surveyor's Errors and Omissions insurance coverage in the form of an Insurance Certificate.

C. For field engineering, employ a professional engineer of the discipline required for specific service on Project, licensed in Idaho.

D. For design of temporary shoring and bracing, employ a Professional Engineer experienced in design of this type of work and licensed in Idaho.

1.06 PROJECT CONDITIONS

A. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

B. Dust Control: Execute work by methods to minimize raising dust from construction operations. Provide positive means to prevent air-borne dust from dispersing into atmosphere and over adjacent property.
    1. Provide dust-proof enclosures to prevent entry of dust generated outdoors.
    2. Provide dust-proof barriers between construction areas and areas continuing to be occupied by Owner.

C. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.
    1. At All Times: Excessively noisy tools and operations will not be tolerated inside the building at any time of day; excessively noisy includes jackhammers.
    2. Outdoors: Limit conduct of especially noisy exterior work to the hours of 8 am to 5 pm.
    3. Indoors: Limit conduct of especially noisy interior work to the hours of 6 pm to 7 am.

D. Pollution Control: Provide methods, means, and facilities to prevent contamination of soil, water, and atmosphere from discharge of noxious, toxic substances, and pollutants produced by construction operations. Comply with federal, state, and local regulations.

1.07 COORDINATION

A. See Section 011000 for occupancy-related requirements.

B. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements.

C. Notify affected utility companies and comply with their requirements.

D. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

E. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

F. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

G. Coordinate completion and clean-up of work of separate sections.

H. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 016000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect four days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Verify locations of survey control points prior to starting work.

B. Promptly notify Architect of any discrepancies discovered.

C. Protect survey control points prior to starting site work; preserve permanent reference points during construction.

D. Promptly report to Architect the loss or destruction of any reference point or relocation required because of changes in grades or other reasons.

E. Replace dislocated survey control points based on original survey control. Make no changes without prior written notice to Architect.

F. Utilize recognized engineering survey practices.

G. Establish elevations, lines and levels. Locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements including pavements; stakes for grading, fill and topsoil placement; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, ground floor elevations.

H. Periodically verify layouts by same means.

I. Maintain a complete and accurate log of control and survey work as it progresses.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Keep areas in which alterations are being conducted separated from other areas that are still occupied.
   1. Provide, erect, and maintain temporary dustproof partitions of construction specified in Section 015000 as necessary to coordinate with work indicated on drawings..

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.
   3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

D. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Fire Alarm): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.

2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
    a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
    b. See Section 011000 for other limitations on outages and required notifications.
    c. Provide temporary connections as required to maintain existing systems in service.
4. Verify that abandoned services serve only abandoned facilities.
5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

E. Protect existing work to remain.
1. Prevent movement of structure; provide shoring and bracing if necessary.
2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.

F. Adapt existing work to fit new work: Make as neat and smooth transition as possible.
1. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.
2. Where a change of plane of 1/4 inch (6 mm) or more occurs in existing work, submit recommendation for providing a smooth transition for Architect review and request instructions.

G. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

H. Refinish existing surfaces as indicated:
1. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.
2. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.

I. Clean existing systems and equipment.

J. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

K. Do not begin new construction in alterations areas before demolition is complete.

L. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.
3. Provide openings for penetration of mechanical, electrical, and other services.
4. Match work that has been cut to adjacent work.
5. Repair areas adjacent to cuts to required condition.
6. Repair new work damaged by subsequent work.
7. Remove samples of installed work for testing when requested.
8. Remove and replace defective and non-conforming work.

D. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

E. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

F. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

G. Restore work with new products in accordance with requirements of Contract Documents.

H. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

I. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material , to full thickness of the penetrated element.

J. Patching:
   1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
   2. Match color, texture, and appearance.
   3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair substrate prior to repairing finish.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Remove debris and rubbish from pipe chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.

C. Broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.

D. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

E. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.

F. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 SYSTEM STARTUP

A. Coordinate schedule for start-up of various equipment and systems.

B. Notify Architect and owner seven days prior to start-up of each item.

C. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence, and for conditions that may cause damage.

D. Verify tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

E. Verify that wiring and support components for equipment are complete and tested.

F. Execute start-up under supervision of applicable Contractor personnel and manufacturer's representative in accordance with manufacturers' instructions.

G. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, check, and approve equipment or system installation prior to start-up, and to supervise placing equipment or system in operation.

H. Submit a written report that equipment or system has been properly installed and is functioning correctly.

3.11 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance, and shutdown of each item of equipment at scheduled time, at equipment location.

C. For equipment or systems requiring seasonal operation, perform demonstration for other season within six months.

D. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

E. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

F. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

G. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

3.12 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

B. Testing, adjusting, and balancing HVAC systems: See Section 230593 - Testing, Adjusting, and Balancing for HVAC.

3.13 FINAL CLEANING

A. Execute final cleaning prior to final project assessment.

B. Use cleaning materials that are nonhazardous.

C. Clean interior and exterior glass, surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces,

D. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

E. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

F. Clean filters of operating equipment.

G. Clean site; sweep paved areas, rake clean landscaped surfaces.

H. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.14 CLOSEOUT PROCEDURES

A. Make submittals that are required by governing or other authorities.

B. Accompany Project Coordinator on preliminary inspection to determine items to be listed for completion or correction in the Contractor's Correction Punch List for Contractor's Notice of Substantial Completion.

C. Notify Architect when work is considered ready for Architect's Substantial Completion inspection.

D. Submit written certification containing Contractor's Correction Punch List, that Contract Documents have been reviewed, work has been inspected, and that work is complete in accordance with Contract Documents and ready for Architect's Substantial Completion inspection.

E. Conduct Substantial Completion inspection and create Final Correction Punch List containing Architect's and Contractor's comprehensive list of items identified to be completed or corrected and submit to Architect.

F. Correct items of work listed in Final Correction Punch List and comply with requirements for access to Owner-occupied areas.

G. Accompany Project Coordinator on Contractor's preliminary final inspection.

H. Notify Architect when work is considered finally complete and ready for Architect's Substantial Completion final inspection.

I. Complete items of work determined by Architect listed in executed Certificate of Substantial Completion.

3.15 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty, whichever is longer.

C. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

D. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

E. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION 017000

SECTION 017800 - CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections.

B. Section 013000 - Administrative Requirements: Submittals procedures, shop drawings, product data, and samples.

C. Section 017000 - Execution and Closeout Requirements: Contract closeout procedures.

D. Individual Product Sections: Specific requirements for operation and maintenance data.

E. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit electronic copies of preliminary draft or proposed formats and outlines of contents before start of Work. Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by Owner, submit completed documents within ten days after acceptance.
   3. Submit electronic copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit electronic sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.
   3. Addenda.
   4. Change Orders and other modifications to the Contract.
   5. Reviewed shop drawings, product data, and samples.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

C. Store record documents separate from documents used for construction.

D. Record information concurrent with construction progress.

E. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
   1. Manufacturer's name and product model and number.
   2. Product substitutions or alternates utilized.
   3. Changes made by Addenda and modifications.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Measured depths of foundations in relation to finish first floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: For each product or system, list names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

D. Provide servicing and lubrication schedule, and list of lubricants required.

E. Include manufacturer's printed operation and maintenance instructions.

F. Include sequence of operation by controls manufacturer.

G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

H. Additional Requirements: As specified in individual product specification sections.

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

C. Binders: Commercial quality, 8-1/2 by 11 inch (216 by 280 mm) three D side ring binders with durable plastic covers; 2 inch (50 mm) maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

F. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

G. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

H. Text: Manufacturer's printed data, or typewritten data on 20 pound paper.

I. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

J. Arrangement of Contents: Organize each volume in parts as follows:
   1. Project Directory.
   2. Table of Contents, of all volumes, and of this volume.
   3. Operation and Maintenance Data: Arranged by system, then by product category.
      a. Source data.
      b. Product data, shop drawings, and other submittals.
      c. Operation and maintenance data.
      d. Field quality control data.
      e. Photocopies of warranties and bonds.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

END OF SECTION 017800

SECTION 024100 - DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

A. Drawings and general provisions of the Contract including General and Supplementary Conditions and other Division 1 Specification Sections.

B. Section 011000 - Summary: Limitations on Contractor's use of site and premises.

C. Section 015000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

D. Section 017000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - U.S. Occupational Safety and Health Standards; current edition.

B. NFPA 241 - Standard for Safeguarding Construction, Alteration, and Demolition Operations; 2013.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Demolition Plan: Submit demolition plan as specified by OSHA and local authorities.
   1. Indicate extent of demolition, removal sequence, bracing and shoring, and location and construction of barricades and fences.
   2. Identify demolition firm and submit qualifications.
   3. Include a summary of safety procedures.

C. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 QUALITY ASSURANCE

A. Demolition Firm Qualifications: Company specializing in the type of work required.
   1. Minimum of 10 years of documented experience working around historical materials such as plaster, marble, terrazzo, wood flooring, doors and trim, historical light fixtures and decorative metal.

PART 2 PRODUCTS

PART 3 EXECUTION

3.01 SCOPE

A. Remove portions of the building and systems as indicated on Drawings..

B. Remove other items indicated, for salvage and relocation.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Obtain required permits.
   2. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.
   3. Provide, erect, and maintain temporary barriers and security devices.

4. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
5. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
6. Do not close or obstruct roadways or sidewalks without permit.
7. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
8. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

B. Do not begin removal until receipt of notification to proceed from Owner.

C. Do not begin removal until built elements to be salvaged or relocated have been removed.

D. Protect existing structure and other elements that are not to be removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

E. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

F. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

G. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
1. Verify that construction and utility arrangements are as shown.
2. Report discrepancies to Architect before disturbing existing installation.
3. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Separate areas in which demolition is being conducted from other areas that are still occupied.
1. Provide sound retardant partitions of construction indicated on drawings in locations indicated on drawings.

C. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

D. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

E. Services (Including but not limited to HVAC, Plumbing, Fire Protection, Electrical, and Fire Alarm): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. See Section 011000 for other limitations on outages and required notifications.
   4. Verify that abandoned services serve only abandoned facilities before removal.
   5. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

F. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Leave site in clean condition, ready for subsequent work.

END OF SECTION 024100

SECTION 030100 - CONCRETE RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cleaning of existing concrete surfaces.

B. Repair of exposed structural, shrinkage, and settlement cracks.

C. Resurfacing of concrete surfaces having spalled areas and other damage.

D. Repair of deteriorated concrete.

E. Scope of Work: As indicated on the drawings.

1.02 REFERENCE STANDARDS

A. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2013.

B. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.

C. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

D. ASTM C1059/C1059M - Standard Specification for Latex Agents for Bonding Fresh to Hardened Concrete; 2013.

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

C. Qualification Statements.

D. Project Record Documents: Accurately record actual locations and types of repairs.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

B. Cleaner Qualifications: Company specializing in, and with minimum of 3 years of experience in, the type of cleaning specified.

C. Installer Qualifications: Company specializing in performing work of the type specified and with minimum of 3 years of documented experience.

1.05 MOCK-UP(S)

A. Test each type of maintenance procedure required on each type of existing construction, to determine the most appropriate procedures to use and as a record of expected results.

B. Crack Injection: Prepare one sample of each type of injection.

C. Horizontal Surface Repair: Total of 10 foot (3 m) square area, demonstrating each type of repair.

D. Locate mock-up(s) where directed.

E. Re-work mock-up(s) until satisfactory to Architect.

F. Satisfactory mock-up(s) may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Comply with manufacturers' instructions for storage, shelf life limitations, and handling of products.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS

A. Degreaser:
   1. Products:

a. L&M Construction Chemicals, Inc, a subsidiary of Laticrete International, Inc.; CITREX: www.lmcc.com.
b. SpecChem, LLC; Citrus Cleaner: www.specchemllc.com.

B. Detergent: Non-ionic detergent.

2.02 CEMENTITIOUS PATCHING AND REPAIR MATERIALS

A. Bonding Slurry: Water-based latex admixture complying with ASTM C1059/C1059M, combined with Portland cement and sand in accordance with admixture manufacturer's instructions.

B. Cementitious Repair Mortar, Trowel Grade: One- or two-component, factory-mixed, polymer-modified cementitious mortar.
1. Mixed with water or latex type bonding agent in proportions as recommended by manufacturer.
2. Products:
a. Kaufman Products Inc.; Patchwell: www.kaufmanproducts.net.
b. Or approved equal.

2.03 POLYURETHANE PATCHING AND REPAIR MATERIALS

A. Polyurethane Sealant:
1. Products:
a. BASF Construction Chemicals-Building Systems: Sonneborne Sonolastic NP2 elastomeric polyurethane sealant: www.buildingsystems.basf.com.
b. Or approved equal.

2.04 ACCESSORIES

A. Portland Cement: ASTM C150/C150M, Type I, grey.

B. Sand: ASTM C33/C33M or ASTM C404; uniformly graded, clean.

C. Water: Clean and potable.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that surfaces are ready to receive work.

B. Beginning of installation means acceptance of substrate.

3.02 CLEANING EXISTING CONCRETE

A. Clean concrete surfaces of dirt or other contamination using the gentlest method that is effective.
1. Try the gentlest method first, then, if not clean enough, use a less gentle method taking care to watch for impending damage.
2. Clean out cracks and voids using same methods.

B. The following are acceptable cleaning methods, in order from gentlest to less gentle:
1. Water washing using low-pressure, maximum of 100 psi, and, if necessary, brushes with natural or synthetic bristles.
2. Increasing the water washing pressure to maximum of 400 psi.
3. Adding detergent to washing water; with final water rinse to remove residual detergent.
4. Steam-generated low-pressure hot-water washing.

3.03 REPAIRING CONCRETE

A. Repair measures should be selected that retain as much of the original material as possible, while providing for removal of an adequate amount of deteriorated concrete to provide a sound substrate for a durable repair.

B. Installed repairs must visually match the existing concrete as closely as possible and should be similar in other aspects such as compressive strength, permeability, and other characteristics important in the mix design of the concrete.

3.04 CONCRETE SURFACE REPAIR USING CEMENTITIOUS MATERIALS

A. Clean concrete surfaces, cracks, and joints of dirt, laitance, corrosion, and other contamination using method(s) specified above and allow to dry.

B. Apply coating of bonding agent to entire concrete surface to be repaired.

C. Fill voids with cementitious mortar flush with surface.

D. Apply repair mortar by steel trowel to a minimum thickness of 1/4 inch (6 mm) over entire surface, terminating at a vertical change in plane on all sides.

E. Trowel finish to match adjacent concrete surfaces.

F. Damp cure for four days.

3.05 CRACK REPAIR USING POLYURETHANE REPAIR MATERIALS

A. Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

B. Prime joint substrates where recommended by joint-sealant manufacturer.

C. Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

D. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated.

E. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

F. Install bond breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

G. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

H. Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   2. Provide concave joint configuration per Figure 5A in ASTM C1193.

END OF SECTION 030100

SECTION 041000 - MORTAR FOR EXTERIOR STONE REPAIRS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation of setting mortar for newly installed or reinstalled stone units and Dutchman.

B. Installation of pointing mortar for joints of newly-installed and existing stone units and Dutchman.

C. Cutting out existing cracked or deteriorated mortar joints. Furnishing and installing new pointing mortar.

1.02 RELATED REQUIREMENTS

A. Section 044600 – Exterior Stone Repair and Replacement

B. Section 079200 – Joint Sealants.

1.03 REFERENCE STANDARDS

A. ACI 530/530.1/ERTA - Building Code Requirements and Specification for Masonry Structures and Related Commentaries; American Concrete Institute International; 2011.

B. ASTM C91/C91M - Standard Specification for Masonry Cement; 2012.

C. ASTM C144 - Standard Specification for Aggregate for Masonry Mortar; 2011.

D. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.

E. ASTM C207 - Standard Specification for Hydrated Lime for Masonry Purposes; 2006 (Reapproved 2011).

F. ASTM C404 - Standard Specification for Aggregates for Masonry Grout; 2011.

G. ASTM C476 - Standard Specification for Grout for Masonry; 2010.

H. ASTM C1019 - Standard Test Method for Sampling and Testing Grout; 2013.

I. ASTM C1148 - Standard Test Method for Measuring the Drying Shrinkage of Masonry Mortar; 1992a (Reapproved 2008).

1.04 SUBMITTALS

A. Submit the following prior to beginning the trial repair work:
   1. Certificates attesting to compliance with the applicable specifications for grades, types, etc., included in this specification:
      a. Portland cement.
      b. Lime.
      c. Sand gradation.
      d. Test reports from an independent laboratory for all required tests.
   2. Product data and for acrylic additives and grout for crack repair.

B. Submit test reports from testing agency for all required tests. Testing agencies must submit testing procedures to Owner for review and approval prior to testing.

1.05 QUALITY ASSURANCE

A. Qualifications:
   1. Contractor: Must have a minimum of five (5) years' experience in construction and supervision of masonry repair work.
   2. All workers using power tools are to demonstrate, to the satisfaction of the Architect and Authorized DPW Representative, that they can use the tool appropriately for this Work.
   3. Masons must have a minimum of three (3) years' experience in the preparation of masonry mortar. Apprentices must be fully supervised by an experienced tradesman.
   4. Single Source Responsibility for Mortar materials: Obtain mortar ingredients of uniform quality, including color for exposed masonry, from one manufacturer for each cementitious component and from one source and producer for each aggregate.

5. Manufacturers: Materials shall be obtained only from manufacturers who will, if required, send a qualified technical representative to the project site, for the purpose of advising the Contractor of the procedures and precautions for the use of the materials.

B. Field Quality Control: Work in place shall be subject to inspection and testing. Work found to be unacceptable shall be replaced with new, acceptable work.

1.06 MOCK-UP

A. Provide a sample mockup, for each type of mortar installation, of the following items. Samples shall be prepared by qualified personnel who will be performing the work. Before work commences, the sample shall be approved by the Architect. The approved sample shall be the standard for the work.

B. Provide a sample of the method of removing mortar from the stone joints in area of five (5) linear feet, for each type of installation.

C. Provide a sample of the mortar, for each type of installation. The mortar shall match the existing color, composition, texture, particle size and appearance of existing mortar as determined and selected by Architect/Engineer.

D. Pointing: Provide a sample of five (5) linear feet minimum of pointed stone, matching joint profile shown on Drawings, for each type of installation.

E. Provide samples of products listed below.
1. One bag of Accucolor TA 620 unsanded Grout by TEC, Inc. as manufactured by H.B. Fuller.
2. One bag of Accucolor TA 650 sanded Grout by TEC, Inc. as manufactured by H.B. Fuller.
3. One bottle of Acryl TA-869 by TEC, Inc., as manufactured by H.B. Fuller.
4. One 12 in. by 12 in. section of Kraft paper.

1.07 FIELD CONDITIONS

A. Repoint mortar joints and repair stone only when air temperature is between 40 and 90 deg F (4 and 32 deg C) and is predicted to remain so for at least 7 days after completion of work.

B. Cold-Weather Requirements: Comply with the following procedures for stone repair and mortar-joint pointing:
1. When air temperature is below 40 deg F (4 deg C), heat mortar ingredients, repair materials, and existing stone to produce temperatures between 40 and 120 deg F (4 and 49 deg C).
2. When mean daily air temperature is below 40 deg F (4 deg C), provide enclosure and heat to maintain temperatures above 32 deg F (0 deg C) within the enclosure for 7 days after repair and pointing.

C. Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity conditions produce excessive evaporation of water from mortar and patching materials. Provide artificial shade and wind breaks and use cooled materials as required. Do not apply mortar to substrates with temperatures of 90 deg F (32 deg C) and above.

1.08 SEQUENCING AND SCHEDULING

A. Perform exterior stone restoration work in the following sequence.
1. Perform localized cleaning of stone units.
2. Repair existing stonework, including replacing stone with new stone materials.
3. Remove existing cracked or deteriorated sealant and mortar joints.
4. Repoint mortar joints and install sealant at joints between exterior stone flooring and wall surfaces.

B. Protection of Work.
1. Do not use tools which will further damage mortar and Dutchman for mortar removal within 10 feet of Dutchman, grouting, or pointing for a minimum of two weeks after these are done.

1.09 1.09 MORTAR TESTING

A. The Contractor shall engage and pay the costs for a testing laboratory, approved by the Architect.

PART 2 PRODUCTS

2.01 MATERIALS FOR POINTING AND SETTING MORTAR

A. White Portland Cement: ASTM C-150, Type I, non-staining without air entrainment.

B. Gray Portland Cement: ASTM C-150, Type I, non-staining without air entrainment.

C. Sand: ASTM C144, to match sand in original mortar in color and texture.
   1. Grain size and angularity of sand must match original.

D. Lime: ASTM C-207, Type S, fine hydrated lime, non-air-entrained.

E. Water: Clean, potable.

F. Mortar: ASTM C270, Type N made up of one-part lime, one part portland cement and six parts sand by volume.

G. Mortar color shall match approved samples. Color shall be adjusted by mixture of white and gray portland cement and by sand types within the range of approved sand. Pigments shall not be used without prior approval by Architect/Engineer.
   1. Color: Obtain aggregate from a local source.

H. Masonry cement shall not be used.

I. No additives or accelerators shall be used in any mortar at any time other than specified herein.

J. Dutchman Joint Grout:
   1. Grout to repair cracks greater in width than .012 inch and less than .125 inch shall be made using TA-620 unsanded grout and Acrylic Latex Additive TA-869, as manufactured by TEC, an H.B. Fuller Company. (Cracks of width less than .012 inch shall not be repaired.)
      a. AccuColor unsanded grout color: To be selected by Architect from manufacturer's full range of colors.
   2. Grout to repair cracks greater than .125 inch shall be made using TA-650 sanded grout and Acrylic Latex Additive TA-869, as manufactured by TEC, an H.B. Fuller Company.
      a. AccuColor unsanded grout color: To be selected by Architect from manufacturer's full range of colors.
   3. Use Acrylic Latex Additive TA-869 in accordance with manufacturer's recommendations. Proportion mix in accordance with manufacturer's recommendations.

K. Grout Curing Cover: Grout curing cover shall be Kraft paper.

2.02 MATERIAL HANDLING AND STORAGE

A. All material shall be delivered, stored, and handled so as to prevent deterioration or the intrusion of any foreign matter. Packaged material shall be delivered and stored in the original packages. Materials in broken packages or showing evidence of damage will be rejected.

B. Materials shall not be stored in such a manner as to damage or place undue stress on the existing structure or the roof membrane of the building.

C. The Contractor shall take the necessary precautions to meet the following conditions:
   1. Store all material off ground to prevent contamination by mud, dust, or materials likely to cause staining or other defects.
   2. Cover material to protect from elements and neglect.

PART 3 EXECUTION

3.01 GENERAL

A. Joints to be filled with sealant rather than mortar are indicated on the Drawings.

3.02 FIELD QUALITY CONTROL

A. Mortar testing shall be completed for each type of pointing mortar used. Testing is to be done to verify that mortar compressive strengths are consistent and do not vary in different building locations.
   1. At least two weeks prior to the start of pointing work, one set of at least nine mortar cubes shall be taken from a batch of mortar prepared by the Contractor, in the presence of the testing laboratory personnel, with the materials to be used for the mortar during the pointing work, in accordance with ASTM C 270.
   2. One set of at least nine cubes shall be taken at a random day and time up to five (5) times during the progress of the pointing work in accordance with ASTM C 270. In general a set will be taken once every two weeks during pointing work. The time that each set will be taken will be determined by the Architect. Mortar cubes, which do not meet test requirements, will not be considered as one of the twenty sets of cubes.
   3. Three cubes from each set shall be tested at three, seven, and twenty-eight days in accordance with ASTM C 270.
   4. The results achieved from the random sampling taken during the Work will be expected to be consistent with the set made prior to the start of the pointing Work.
   5. If the compressive strengths are 10% higher or lower than the initial tests, notify Architect immediately. Architect will review the test results and Work done since the last test and determine if removal and replacement of mortar is to be done and to also determine the extents of removal and replacement.

B. All mortar mixing is to be accomplished using a mechanical mixer. Use a 1 cu. ft. box or other device to ensure that mortar is properly proportioned by volume in accordance with Contract Documents. Discard all unused mortar 2-1/2 hours after initial mixing.

C. Do not use frozen materials mixed with or coated with ice or frost. When temperature or surrounding air is 50°F and falling, take precautions to protect masonry materials from freezing. Comply with “Cold Weather Masonry Construction and Protection Recommendations,” BIA Technical Note 1A.

D. Do not use any admixtures or accelerators in mortar other than specified herein.

3.03 SETTING

A. Set stone units or Dutchmen to be newly installed or reinstalled in full bed of mortar.

B. Install stone in accordance with Section 044600.

3.04 SETTING MORTAR

A. Mixing of setting mortar:
   1. Thoroughly mix cement, lime and sand in accordance with requirements of BIA M1.
      a. Mix materials, proportion by volume. The proportions are as follows:
         1) Portland Cement: 1 part
         2) Hydrated Lime: 1 part
         3) Sand: 6 parts
         4) Control batching procedure to ensure proper proportions by measuring materials by volume.
         5) Do not measure mortar materials by shovels.

B. Mortar may be retempered by adding water and remixing as required for workability.
   1. Remixing may only be done once.

C. Wipe excess mortar from surfaces of exposed stone.

3.05 PREPARATION OF JOINTS FOR REPOINTING

A. Rake out and repoint mortar joints to the following extent:
   1. All joints in areas indicated on drawings and as described below:
   2. Joints where mortar is missing or where they contain holes.
   3. Cracked joints where cracks are either parallel or perpendicular to the joint, including cracks between mortar and store.

4. Cracked joints where cracks are 0.012 inches or more in width and of any depth.
5. Joints where they sound hollow when tapped by metal object.
6. Joints where they are worn back ¼ inch (6 mm) or more from surface.
7. Joints where they are deteriorated to point that mortar can be easily removed by hand.
8. Joints, other than those indicated as sealant-filled joints, where they have been filled with substances other than mortar.

B. Do not rake out and repoint joints where not required.

C. For preparation of joints to be pointed or repointed in non-decorative or sculpted areas:
   1. Grind out a narrow line along the center of the length of the mortar joints to a depth of at least 3/4 inch or to sound mortar, whichever is deeper. Remove mortar for width of joint by cutting, using hand tools only. Remove mortar to a depth of twice the width of the joint, up to a maximum of 2 inches, removing all unsound mortar. Adjacent stone shall not be damaged during grinding and cutting out of joints. Mortar shall be removed without loss or damage of adjacent stone. Maximum blade width for mechanical grinders shall be 3/16 inch.
   2. All preparation of joints shall be in accordance with approved test sample.

D. Rake out caulked joints. Remove mortar to depths specified above. Remove any traces of sealant in joint or at joint interface to be pointed.

E. Remove any traces of mortar at joint interface to be pointed. When cutting is complete, remove all loose material with a brush.

F. Care shall be taken during mortar and sealant removal not to damage the masonry units. Adjacent stone shall not be damaged during grinding and cutting out of joints. Mortar shall be removed without loss or damage of adjacent stone.

G. No power tools shall be used in preparation of joints for repointing, unless approved for use by Architect after successful completion of a sample. The use of light pneumatic tools may be used if their use does not damage the adjacent stone as determined by the Architect. The use of any mortar removal technique or tool that damages the adjacent stone surfaces will not be allowed.
   1. All workers using power tools are to demonstrate, to the satisfaction of the Architect and authorized DPW Representative, that they can use the tool appropriately for this Work.

3.06 POINTING MORTAR

A. For joints up to 3/8 inch in width, cut out mortar joints to a depth of at least 3/4 inch. If joint width is greater than 3/8 inch, cut out joint to a depth equal to twice the width of the joint. Rake out all caulked joints. Remove additional mortar if it is found to be unsound. Remove any traces of mortar at joint interface to be pointed. When cutting is complete, remove all loose material with a brush and oil-free compressed air. Care shall be taken during cutting not to damage the masonry units.

B. Mixing of mortar:
   1. Thoroughly mix cement, lime and sand in accordance with requirements of BIA M1.
      a. Mix materials, proportion by volume. The proportions are as follows:
         1) White Portland Cement: Mix with gray as required to match approved mortar sample.
         2) Gray Portland Cement: Mix with white as required to match approved mortar sample.
         3) Hydrated Lime: 1 part
         4) Sand: 6 parts
         5) White and gray portland cement quantity after mixing shall equal one (1) part by volume of overall mix proportions for grout.
         6) Control batching procedure to ensure proper proportions by measuring materials by volume.
         7) Do not measure mortar materials by shovels.

C. Pre-hydrate the mortar by thoroughly mixing all the dry ingredients. Then mix again, adding only enough water to produce a damp, unworkable mix that will retain its form when pressed into a ball. After keeping mortar in this dampened condition for one to two hours, add enough water to bring it to proper consistency. Mortar may be retempered by adding water and remixing as required for workability. Do not use mortar if more than 1-1/2 hours has elapsed since the pre-hydration of mortar has been completed.
   1. Retempering mortar by adding water may be done once.

D. Dampen the joint to be pointed prior to pointing. The masonry must absorb all surface water. Adjacent stone surfaces must be free of surface water.

E. Pack the mortar tightly into the joint in thin layers (1/4 in. maximum layer thickness). Allow each layer to become thumbprint dry before applying next layer.
   1. Use tuck pointers or pointing trowels that have blades slightly narrower than the joint width. Keep all trowels, hawks, and tuck pointers free of excess mortar. Prevent mortar on trowels and hawks from coming into contact with stone face surfaces.

F. Tool joint to concave profile.

G. Contractor shall take care to ensure that mortar is not smeared on stone surfaces. In the event this does happen, wipe excess mortar from surface of stone adjacent to mortar joint with damp sponge or cloth. Note: Use only sponge or cloth that is damp, not wet or saturated. When tightly squeezed water shall not run from damp sponge or cloth. Surface of stone shall not have visible accumulation of water immediately after cleaning. Do not touch or disturb newly installed pointing mortar during cleaning. Clean until mortar and mortar haze is removed from adjacent stone surfaces.
   1. Replace water frequently so that it is clean.

H. Upon completion of pointing, thoroughly rinse surfaces of walls at pointed areas to remove dust and other surface residue from pointing process. Use only low pressure (less than 100 psi) water rinse. Rinse may be eliminated only with Architect approval.

END OF SECTION 041000

SECTION 044600 - EXTERIOR STONE REPAIR AND REPLACEMENT

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Installation of stone repair samples.

B. Stone repairs (indicated on Drawings), including the following:
   1. Installation of stone dutchman units fabricated from new stone.
   2. Installation of new stone replacement units.

1.02 RELATED REQUIREMENTS

A. Section 041000 – Mortar for Exterior Repairs.

B. Section 079200 – Joint Sealants.

1.03 REFERENCE STANDARDS

A. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2012.

B. ASTM C615/C615M - Standard Specification for Granite Dimension Stone; 2011.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. Quality Assurance Submittal:
   1. Qualification Requirements: Review of the qualifications of the workmen for this section is a requirement of this project. In order to be qualified for this work, the Contractor shall submit for review a list of projects showing the experience of each team member as outlined in the Quality Assurance section of this specification.
      a. The Contractor shall, for each worker, identify each project by name and location, provide an outline description of the scope of work, dollar value of the contract, date of completion, a reference contract, and a description of the worker's responsibility on the project.
      b. If, in the opinion of the Architect/Engineer and the Owner, the worker does not meet the requirements for this section, the Contractor shall be required to submit alternate workmen providing a full set of quality assurance submittals for that worker for review.

B. Product Identification: Submit three copies of manufacturer's product literature, application instructions, and manufacturer's safety data sheets for all products used in repairs before the work begins.

C. Prior to beginning work, submit the following:
   1. Product Data: For each type of product indicated. Include recommendations for application and use. Include test data substantiating that products comply with requirements and certified test reports of anchorage components.
   2. Two samples of each specific anchor, fastener, and accessory, for manufacturer's materials to be used in the stone repair.
   3. Manufacturer's specifications and installation instructions for each item of proprietary material used, showing compliance with its use.
   4. Shop drawings for the following:
      a. Replacement stone units.
      b. Partial replacement stone units (Dutchmen).
      c. Replacement and repair anchors: Include details of anchors within individual stone units, with locations of anchors and dimensions of holes and recesses in stone required for anchors, including direction and angle of holes for pins.
   5. For new granite.
      a. Submit fabricator's quality control procedures, including quarrying, sorting, blending, fabrication, and shipping.

b. Submit 12” x 12” x 2” thick granite samples representing complete range of color variations. Each sample shall have same color and texture as existing granite on the building.
c. Submit granite fabricator’s literature and test results certifying that the granite to be supplied for use on the building has the required properties. The test results submitted shall be for granite material from all quarries to be used on this project.
d. Shop drawings for review including complete cutting and setting drawings. Such drawings shall show in detail sizes, sections, and dimensions of stone, arrangement of joint locations, joint width tolerances, radii of curves, anchoring, and adjacent stone conditions.

1.06 QUALITY ASSURANCE

A. Contractor Qualifications: Contractor’s workmen performing this work must have at least five years proven experience in stone masonry repair and restoration and shall have successfully completed three projects similar in scope to the work of this project within the last three years.
   1. Field supervision: Contractor shall maintain experienced, full-time supervisors on project site during times that stone repair and replacement are in progress. Supervisors shall not be changed during project, except for causes beyond the control of the Contractor.

B. Except as modified by the Drawings and Specifications, all new granite material and installation shall be in accordance with the latest edition of “Specifications for Architectural Granite,” published by National Building Granite Quarriers Association, Inc. (NBGQA).

C. Field Quality Control: Work in place shall be subject to inspection testing. Work found to be unacceptable shall be replaced with new, acceptable work.

D. Source Limitations: Obtain each type of material for stone repair from one source with resources to provide materials of consistent quality in appearance and physical properties.

E. Manufacturers: Materials shall be obtained only from manufacturers who will, if required, send a qualified technical representative to the project site, for the purpose of advising the Contractor of the procedures and precautions for the use of the materials.

1.07 1.07 MOCK-UP

A. Provide a sample of each repair type, using the materials and methods specified herein, and the tools and equipment intended to be used by the workmen performing the work.

B. Mortar used with repairs shall be as in accepted samples provided for work of Section 041000, and shall match the adjacent stone in color, texture, composition, texture, particle size and appearance.

C. Sample locations shall be selected by the Architect in consultation with the Contractor.

D. Additional samples shall be made until an acceptable result is achieved.

E. Before full scale work commences, each sample shall be reviewed and approved by the Owner’s Representative.

F. The accepted samples shall be the standard for the work. All samples shall be retained throughout the duration of the project as references for the work, and shall be incorporated into the work upon completion.

G. The Contractor shall ensure that the samples are performed by the same Contractor’s personnel who are to perform the work of the overall project.

1.08 FIELD CONDITIONS

A. All equipment, material and appliances required for the completion of the work, shall be so located, laid out, constructed and operated as to provide for maximum efficiency, safety of the public and all persons employed at the site, and to prevent damage to all new and existing construction.

B. Confine operations at site to areas permitted by laws, permits, contract, and the Owner.

C. Contractor shall assume full responsibility for protection and safekeeping of products stored on premises, and for their proper use.

D. Where conditions are uncovered that are not anticipated by the Drawings and/or Specifications, the Contractor shall notify the Owner's Representative immediately, before any repairs are initiated.

E. Pointing shall be completed after setting mortar has cured.

F. Coordinate work of this project with other work in progress on the building.

1.09 PROTECTION OF WORK

A. The Contractor shall cover all partially completed work at the end of each working day or when work is not in progress.

B. The cover shall extend a minimum of 24 inches beyond each side of partially completed work and shall be secured tightly in place.

C. Mortar shall be prevented from staining existing and new materials in areas adjacent to area of work.

D. All materials shall be delivered, stored, and handled so as to prevent deterioration or the intrusion of any foreign matter. Packaged materials shall be delivered and stored in the original packages. Materials in broken packages or showing evidence of damage shall not be used and shall be removed from the site upon discovery.

1.10 PROTECTION

A. The Contractor shall exercise caution in performing the work so as not to damage adjacent building elements. It shall be the Contractor's responsibility to protect the adjacent masonry and windows from mechanical damage due to scaffolding and other equipment.

B. Damage: Any damaged materials, wood, metal, or glass that has been etched, the paint removed, or otherwise damaged, shall be repaired to the satisfaction of the Owner's Representative without additional cost to the Owner.

1.11 TOOLS AND EQUIPMENT

A. All tools to be used in the redressing of the stone are subject to the approval of the Architect.

B. Tools that permanently deposit iron fragments or filings on the stone surface are not acceptable.

PART 2 PRODUCTS

2.01 GRANITE

A. Granite for dutchman and replacement units shall match color, finish, and cut profile of units to be repaired. Provide units for use as dutchman and replacement units for review by Architect prior to installation.

B. New granite shall conform with the following physical requirements in accordance with ASTM C615 and shall have the following properties:
   1. Color range: Match existing.
   2. Geological formation: Match existing.
   3. Absorption by weight: 0.40 percent maximum when tested in accordance with ASTM C97
   4. Density: 160 pcf minimum.
   5. Compressive strength: 19,000 psi minimum when tested in accordance with ASTM C170
   6. Modulus of rupture: 1,500 psi when tested in accordance with ASTM C99.
   7. Flexural strength: 1,200 psi minimum when tested in accordance with ASTM C88.
   8. All granite to be installed shall be free of cracks, chips, and other defects.

2.02 DUTCHMAN

A. All stone for dutchman and replacement units shall be cut accurately to shape and dimensions and full to the square. All exposed faces shall be dressed true. Beds and joints shall be at right angles to the face, and joints shall have a uniform thickness to match size and profile shown on the drawings.

B. The fabricator and the Contractor shall determine all field dimensions necessary for fabrication of dutchman and replacement units.

C. Dutchman shall be inspected by Architect prior to installation.

2.03 FASTENERS

A. All anchors shall be stainless steel conforming with ASTM A 167, Type 316.

B. Helical Anchors: Manufactured by Helifix, Weston, Ontario, Canada or approved equal. Use dry without epoxy. Anchors are to be Type 304 stainless steel.

C. Use drill, bits, and setting tools recommended by manufacturer.

D. Provisions for anchorage of new stone shall be clearly indicated on the shop drawings, and shall be in accordance with the drawings and specifications.

E. If existing steel, other than anchors (which are to be replaced), is exposed during repairs, rust-inhibitive coating system shall be 90-97 Tnemec-Zinc zinc-rich urethane primer (for ungalvanized metal only) and Series 66 Hi-Build Epoxoline epoxy topcoat, as manufactured by Tnemec. Coatings shall be applied in accordance with coating manufacturer's recommendations. Face of stone shall be protected from coatings during application.

2.04 MORTAR

A. Mortar, as specified in Section 041000 – Mortar for Exterior Stone Repairs.

2.05 SEALANTS:

A. Sealant for joints as specified in Section 079000 – Joint Sealants.

2.06 WATER:

A. Clean, potable water. Water used for prewetting, mixing, and rinsing must have an iron content of less than two (2) parts per million, or 0.0002 percent (by weight). Water to be used shall be sampled and tested for iron content prior to beginning work each day. If iron content of water exceeds requirements, Contractor shall use distilled water.

B. Contractor may use distilled water only for prewetting, mixing, and rinsing in lieu of testing indicated above.

PART 3 EXECUTION

3.01 GENERAL

A. Examine all substrates, support, and conditions under which the work is to be performed. Notify the Architect of any conditions detrimental to the work. Do not proceed with work until unsatisfactory conditions are corrected.

B. Removal of stone units designated for replacement:
   1. Remove units designated for use as dutchman or replacement unit.
   2. Care shall be taken to avoid damaging units.

C. Dutchman and replacement units shall be installed plumb, square, and true to line.

D. Shore and protect adjacent stone units, window frames, and other building elements adjacent to units to be repaired, removed and reinstalled, or removed and replaced.

3.02 SEAL JOINTS

A. Seal joints designated for this repair in accordance with Section 079200 – Joint Sealants.

3.03 DUTCHMAN

A. Partial Stone Replacement (Dutchman Repair): At locations indicated, cut out immediate area of spall, or previous patch, and adjacent unsound stone.

B. Examine exposed steel (if any) at location of removed unit. Clean, prime, and paint the exposed steel with rust-inhibitive coating system. Prepare steel and apply coatings in accordance with coating manufacturer's recommendations. Protect face of stone and adjacent materials from coatings.

C. Remove mortar from joints that abut area of stone removal to same depth as stone was removed. Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that will receive mortar by cleaning with stiff-fiber brush.

D. Trim Dutchman to accurately fit area where stone was removed. Prepare Dutchman to match color and texture of existing adjacent stone prior to setting.

E. Use shims, clamps, wedges, or other devices as necessary to align face of Dutchman with face of stone unit being repaired.

F. Set Dutchman in mortar. Anchor as shown on Drawings. Plane surfaces to set flush with existing stone. Apply final tooling and texturing as required. Provide final application of grout around perimeter of Dutchman.

3.04 GRANITE REPLACMENT

A. At locations indicated, remove stone that has deteriorated or is damaged beyond repair to a minimum depth of 10." Carefully demolish or remove units from joint to joint or as directed by Architect, without damaging surrounding stone.

B. Support and protect remaining stonework that surrounds removal area. Maintain adjoining construction in an undamaged condition.

C. Notify Architect of unforeseen detrimental conditions including voids, cracks, bulges, and loose masonry units in existing masonry backup, rotted wood, rusted metal, and other deteriorated items.

D. Clean stone surrounding removal areas by removing mortar, dust, and loose particles in preparation for replacement.

E. Furnish and install new granite tread to match existing size, color, finish, and edge profiles. Set tread in full bed of mortar, and install new tread true to line, level and plumb. Anchor as indicated on drawings.

F. All new treads to be installed free of cracks, chips, and other defects. It shall be the responsibility of the Contractor to replace any treads (new or existing) damaged during removal and installation activities. Patching compounds and granite Dutchman are not acceptable granite panel repair solutions.

3.05 REPAIR OF ANCHOR HOLES

A. Remove all abandoned anchors and appurtenances from stone.

B. Repair anchor holes by filling holes with mortar or grout matching adjacent stone in color and texture.

C. Carefully clean adjacent stone of any excess mortar.

3.06 CLEAN-UP

A. The premises shall be kept in clean and orderly condition at all times during the progress of the work. Rubbish, barriers, dirt, debris, tools, equipment, and unused materials shall be removed from the site each day.

B. After work has been completed, remove all protection, equipment used in the work, debris, refuse, and surplus materials and remove same from premises.

END OF SECTION 044600

SECTION 050100 - CAST IRON RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. New Cast Iron Stair Treads for interior stair applications.

B. Paint/coating removal from existing cast iron stair treads.

C. Cleaning of existing cast iron stair treads.

D. Cleaning of existing wrought iron guardrail systems.

1.02 REFERENCE STANDARDS

A. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes.

B. NAAMM MBG 531 - Metal Bar Grating Manual; The National Association of Architectural Metal Manufacturers; 2009 (ANSI/NAAMM MBG 531).

C. SSPC-SP 2 - Hand Tool Cleaning; Society for Protective Coatings; 1982 (Ed. 2004).

1.03 SUBMITTALS

A. See Section 013000 – Administrative Requirements, for submittal procedures.

B. Product Data: Manufacturer’s specifications and technical data including detailed specification of construction, fabrication and recommended installation instructions.

C. Shop Drawings: Indicate dimensions, description of materials and finishes, general construction, profiles, sizes of metal sections, connection attachments, anchorage, size and type of fasteners and adhesive and accessories.

D. Samples: Submit two samples for selection and verification purposes, minimum 6-inch x 6-inch (152.4 mm x 152.4 mm) in size illustrating surface finish, color and texture.

1.04 QUALITY ASSURANCE

A. A company specializing in manufacturing products specified in this section, with not less than five years of documented experience.

1.05 MOCK-UPS

A. Apply mockup for each condition as follows to demonstrate aesthetic effects and qualities of materials and execution.
   1. Paint Removal from existing cast iron
      a. Field sample panels shall be of an appropriate size to demonstrate relevant paint removal and cleaning methods. Samples shall establish proper stripper and/or cleaner to be used, application techniques (spray, trowel, brush, etc.) dilution, dwell time, number of applications, proper removal and rinsing techniques (spray wash, sponges, etc.), compatibility, effectiveness and desired results. Coordinate locations with Architect.
      b. Allow test panels to dry a minimum of 48 hours before judging effectiveness.
      c. More than one sample panel may be required if results of initial sample panel are unacceptable.
      d. Upon approval by the Owner, sample panels will be the standard for judging the workmanship and acceptability of the balance of paint removal and operations.
      e. Simulate finished lighting conditions for review of mockups.
      f. Simulate finished lighting conditions for review of mockups.

1.06 WARRANTY

A. Provide manufacturer’s standard warranty. Stair treads shall be free from manufacturing defects in materials, fabrication and installation for a period of one (1) year from the date of Substantial Completion.

1.07 FIELD CONDITIONS

A. Remove paint from cast iron surfaces only when air temperatures are between 40 degrees F and 90 degrees F and will remain so until the substrate is completely dry.

B. Disposal: Dispose of all waste materials in a safe and legal manner.

C. Regulations: Conform to all applicable federal, state and local environmental regulations regarding testing, handling, treatment, containment, collection, transport disposal and discharge of hazardous wastes.

1.08 PROTECTION

A. Protect all adjacent areas from contact with paint removal materials by erecting properly constructed protection positioned to confine and prevent overspray of water or chemicals.

B. Do not use acids or flame tools to strip paint from cast iron, as it will damage the surface.

C. Do not use steel or metal spatulas or tools to scrape stone because of the likelihood of scratching, chipping, gouging, or otherwise marring the surface.

PART 2 PRODUCTS

2.01 CAST STAIR TREADS

A. Cast Iron
   1. Basis-of-Design: Nystrom structural cast iron stair tread model #STCI-L9D.
   2. Base nosing: High quality cast iron free of fin, burrs and slag.
   3. Finish: Natural sand cast finish with anti-slip safety abrasive filler.
   4. Tread Abrasive: Cross-hatched silicon carbide abrasive with a minimum of 2-1/4 ounces per square foot to a minimum of 1/32” thick.
      a. Color: Black.
   5. Widths: As indicated on Drawings.
   6. Installation Anchor: Manufacturer’s standard wing anchor to match existing historic conditions to greatest extent possible.
   7. Bevel back edge of treads at the landings and at top of stairs as indicated on Drawings in order to meet ADA requirements.

B. Abrasive Coating
   1. Apply abrasive coating to existing cast iron stair treads after existing paint is removed in order to meet current code requirements.
      a. Color: Black

2.02 PAINT STRIPPER

A. Sure Klean Fast Acting Stripper as manufactured by Prosoco, Inc., www.prosoco.com.

B. Substitutions: Must be approved in writing by Architect.

2.03 MATERIALS

A. Clean, potable water.

B. Provide all required hoses, valve connections, pumps, nozzles and other necessary water conveying components to provide water where needed.

C. Clean, natural fiber rags for drying.

D. Solvents such as acetone or denatured alcohol.

E. Other manufacturer products may be required for a complete installation. These products are considered to be part of each system as established during field-testing mock-up process.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that field conditions are acceptable and are ready to receive work.

3.02 PROTECTION

A. Install protection to prevent damage to adjacent surfaces, and building occupants.

3.03 INSTALLATION NEW STAIR TREADS

A. Install stair treads in accordance with manufacturer’s instructions.

B. Install components plumb and level, accurately fitted, free from distortion or defects, flush with adjacent surface and rigidly anchored to the substrate.

3.04 PAINT REMOVAL FROM CAST IRON

A. Thoroughly rinse the existing painted tread with clean, clear water, while carefully removing loose paint using a wooden scraper. Allow surface to thoroughly dry.

B. Brush apply a coat of paint stripper over the surface (approximately 1/8" thick), and allow to dwell until paint is lifted from the surface; follow manufacturer's instructions.

C. Scrape off softened paint with a wire brush.

D. Thoroughly rinse the surface with clean, clear water and allow to dry.

E. Repeat the process as necessary to sufficiently remove the paint.

F. For stubborn paint, chemical paint removal using alkaline compounds, such as methylene chloride or potassium hydroxide, may be required. These agents are often available as slow-acting gels or pastes. Contact Architect for further instructions if solvent based paint removal process is not successful.

3.05 APPLICATION

A. Apply abrasive coating to existing cast iron stair treads after existing paint is removed in order to meet current code requirements.

3.06 3.06 ADJUSTING/CLEANING

A. Upon completion of paint removal or cleaning operations, remove tools, equipment, products, protection and any other unnecessary materials from the site. Remove and legally dispose off-site debris, residues, rinse water and waste in accordance with environmental regulations.

B. Clean exposed surfaces as recommended by the manufacturer.

3.07 3.07 PROTECTION

A. Protect during construction activities.

END OF SECTION 050100

SECTION 057200 - ORNAMENTAL HANDRAILS AND RAILINGS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Free standing railings at exterior stairs.

B. Free standing interior railing at existing wood handrail.

C. Re-finishing of existing handrails and railings.

1.02 REFERENCE STANDARDS

A. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.

B. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2014.

C. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.

D. ASTM A276/A276M - Standard Specification for Stainless Steel Bars and Shapes; 2015.

E. E. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.

F. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2014.

G. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2013.

H. ASTM A780/A780M - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2009.

I. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2014.

J. ASTM E488/E488M - Standard Test Methods for Strength of Anchors in Concrete and Masonry Elements; 2010.

K. SSPC-Paint 20 - Zinc-Rich Primers (Type I, "Inorganic," and Type II, "Organic"); 2002 (Ed. 2004).

1.03 1.03 RAILING PERFORMANCE REQUIREMENTS

A. Structural Performance: Provide railings capable of withstanding the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
   1. Handrails and Top Rails of Guards:
      a. Uniform load of 50 lbf/ ft. (0.73 kN/m) applied in any direction.
      b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
      c. Uniform and concentrated loads need not be assumed to act concurrently.
   2. Infill of Guards:
      a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
      b. Infill load and other loads need not be assumed to act concurrently.

B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.04 PERFORMANCE REQUIREMENTS

A. General: In engineering handrails and railings to withstand structural loads indicated, determine allowable design working stresses of materials based on the following:
   1. Cold-Formed Structural Steel: AISI SG-673, Part I, "Specification for the Design of Cold-Formed Steel Structural Members."

B. Structural Performance of Handrails and Railings: Provide handrails and railings capable of withstanding the following structural loads without exceeding allowable design working stress of materials for handrails, railings, anchors, and connections:
   1. Handrails and Top Rail of Guards:

a. Concentrated load of 200 lbf (890 N) applied at any point and in any direction.
b. Uniform load of 50 lbf/ft. (730 N/m) applied horizontally and concurrently with uniform load of 100 lbf/ft. (1460 N/m) applied vertically downward.
c. Concentrated and uniform loads above need not be assumed to act concurrently.

2. Infill Area of Guards:
a. Concentrated load of 50 lbf/ft. (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m.).

C. Thermal Movements: Provide handrails and railings that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
1. Temperature Change (Range): 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

D. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.

1.05 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Schedule and conduct a preinstallation meeting one week before starting work of this section. Attendees shall include, but not be limited to:
1. Contractor.
2. Manufacturer's representative.
3. Architect.
4. Owner's representative.
5. Other subcontractors of adjacent work.

1.06 SUBMITTALS

A. Product Data: For the following:
1. Manufacturer's product lines of railings assembled from standard components.
2. Grout, anchoring cement, and paint products.

B. Shop Drawings: Shop Drawings: Stamped and Signed Engineered dimensioned drawings of railing assemblies indicating the following:
1. Plans, elevations, sections, details and attachments to other work.

C. Samples: For each type of exposed finish required.

D. Delegated Design Submittal: For installed handrails and railings indicated to comply with performance requirements and design criteria, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

E. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

1.07 QUALITY ASSURANCE

A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

B. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of handrails and railings that are similar to those indicated for this Project in material, design, and extent.

C. Source Limitations: Obtain each type of railing through one source from a single manufacturer.

1.08 MOCK-UPS

A. Before installing handrails and railings, build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and qualities of materials and execution. Build mockups to comply with the following requirements, using materials indicated for the completed Work:
   1. Build mockups in the location as directed by Architect.
   2. Build mockups for each form and finish of railing consisting of two posts, top rail, infill area, and anchorage system components that are full height and are not less than 24 inches (600 mm) in length.
   3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
   4. Obtain Architect's approval of mockups before fabricating ornamental handrails and railings.
   5. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.09 DELIVERY, STORAGE AND HANDLING

A. Deliver materials in factory provided protective coverings and packaging.

B. Protect materials against damage during transit, delivery, storage, and installation at site.

C. Inspect materials upon delivery for damage. Repair damage to be indistinguishable from undamaged areas; if damage cannot be repaired to be indistinguishable from undamaged parts and finishes, replace damaged items.

D. Prior to installation, store materials and components under cover, in a dry location.

1.10 FIELD CONDITIONS

A. Field Measurements: Verify handrail and railing dimensions by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Do not install railings until project is enclosed and ambient temperature of space is minimum 65 degrees F (18.3 degrees C) and maximum 95 degrees F (35 degrees C).

C. Maintain ambient temperature of space at minimum 65 degrees F (18.3 degrees C) and maximum 95 degrees F (35 degrees C) for 24 hours before, during, and after railing installation.

1.11 COORDINATION

A. Coordinate installation of anchorages for handrails and railings. Furnish Setting Drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.12 WARRANTY

A. Warranty: Manufacturer's standard one-year warranty against defects in materials, fabrication, finishes, and installation commencing on Date of Substantial Completion.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Basis-of-Design: Subject to compliance with requirements, provide the following product or approved equal:
   1. Steel and Iron Handrails and Railings:
      a. Julius Blum and Company, Inc.

2.02 METALS

A. General: Provide metal free from pitting, seam marks, roller marks, stains, discolorations, and other imperfections where exposed to view on finished units.

B. Steel and Iron: Comply with the following requirements for each form required:

1. Steel Tubing: Cold-formed steel tubing, ASTM A 500, Grade A, unless another grade is indicated or required by structural loads.
2. Steel Rails and Bars: Hot-rolled, carbon steel complying with ASTM A 29/A 29M, Grade 1010.
3. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
4. Cast Iron: Either gray iron, ASTM A/48A 48M, or malleable iron, ASTM A 47/A, A 47/M, unless otherwise indicated.
5. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.

C. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails, unless otherwise indicated.
1. Provide cast or formed brackets as indicated on the drawings.

2.03 FASTENERS

A. Fasteners for Anchoring Handrails and Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring handrails and railings to other types of construction indicated and capable of withstanding design loads.
1. For steel handrails, railings, and fittings, use plated fasteners complying with ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating.

B. Fasteners for Interconnecting Handrail and Railing Components: Use fasteners fabricated from same basic metal as fastened metal, unless otherwise indicated. Do not use metals that are corrosive or incompatible with materials joined.
1. Provide concealed fasteners for interconnecting railing components and for attaching them to other Work, unless otherwise indicated.

C. Cast-in-Place and Postinstalled Anchors: Anchors of type indicated below, fabricated from corrosion-resistant materials with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488 conducted by a qualified independent testing agency.
1. Cast-in-place anchors.
2. Chemical anchors.
3. Expansion anchors.

2.04 PAINT

A. Etching Cleaner for Galvanized Metal: Complying with MPI #25.

B. Galvanizing Repair Paint: High zinc-dust content paint complying with SSPC-Paint 20 and compatible with paints to be used over it.

C. Powder-Coat Finish:
1. Tiger Drylac Metallic, or approved equal.
a. Color: Tiger, Drylac, Bronze Matte 39/60020.

2.05 GROUT AND ANCHORING CEMENT

A. Nonshrink, Nonmetallic Grout: Premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior applications.

B. Erosion-Resistant Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound. Provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

2.06 FABRICATION

A. Assemble handrails and railings in shop to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations.

Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.

B. Form changes in direction of railing members as follows:
   1. As detailed.
   2. By radius bends of radius indicated.
   3. By inserting prefabricated flush elbow fittings.
   4. By any method indicated above, applicable to change in direction involved.

C. Form simple and compound curves by bending members in jigs to produce uniform curvature for each repetitive configuration required; maintain profile of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of handrail and railing components.

D. Welded Connections: Fabricate handrails and railings for connecting members by welding. Cope components at perpendicular and skew connections to provide close fit, or use fittings designed for this purpose. Weld connections continuously to comply with the following:
   1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
   2. Obtain fusion without undercut or overlap.
   3. Remove flux immediately.
   4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.

E. Mechanical Connections: Fabricate handrails and railings by connecting members with railing manufacturer's standard concealed mechanical fasteners and fittings, unless otherwise indicated. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
   1. Fabricate splice joints for field connection using epoxy structural adhesive where this is manufacturer's standard splicing method.

F. Brackets, Flanges, Fittings, and Anchors: Provide manufacturer's standard wall brackets, flanges, miscellaneous fittings, and anchors to connect handrail and railing members to other construction.

G. Provide inserts and other anchorage devices to connect handrails and railings to concrete or masonry. Fabricate anchorage devices capable of withstanding loads imposed by handrails and railings. Coordinate anchorage devices with supporting structure.

H. For railing posts set in concrete, provide core-drilled holes in cured concrete in locations, diameters, and depths shown on the drawings.

I. Shear and punch metals cleanly and accurately. Remove burrs from exposed cut edges.

J. Ease exposed edges to a radius of approximately 1/32 inch (1 mm), unless otherwise indicated. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing the Work.

K. Cut, reinforce, drill, and tap components, as indicated, to receive finish hardware, screws, and similar items.

L. Provide weep holes or another means to drain entrapped water in hollow sections of railing members that are exposed to exterior or to moisture from condensation or other sources.

M. Fabricate joints that will be exposed to weather in a watertight manner.

N. Close exposed ends of railing members with prefabricated end fittings.

O. Provide wall returns at ends of wall-mounted handrails, unless otherwise indicated. Close ends of returns, unless clearance between end of railing and wall is 1/4 inch (6 mm) or less.

P. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses and to produce adequate bearing area to prevent bracket rotation and overstressing of substrate.

2.07 FINISHES, GENERAL (NEW & REFINISHED MATERIALS)

A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipment.

C. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in same piece are not acceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.08 STEEL AND IRON FINISHES

A. Galvanized Handrails and Railings: Hot-dip galvanize exterior steel and iron handrails and railings to comply with ASTM A 123. Hot-dip galvanize hardware for exterior steel and iron handrails and railings to comply with ASTM A 153/A 153M.

B. Galvanizing: Hot-dip galvanize items as indicated to comply with applicable standard listed below:
   1. ASTM A 123/ A 123M for galvanizing steel and iron products.
   2. ASTM A 153/A 153M for galvanizing steel and iron hardware.

C. Fill vent and drain holes that will be exposed in finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.

D. For galvanized handrails and railings, provide galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.

E. Preparation for Shop Priming: After galvanizing, thoroughly clean handrails and railings of grease, dirt, oil, flux, and other foreign matter, and treat with metallic-phosphate process.

F. Apply shop primer to prepared surfaces of handrails and railings, unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Paint Application Specification No. 1," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

G. Refinish painted metal by first commercial blast cleaning metal surfaces (SSPC-SP 6/NACE No. 3).

H. High Performance Coating: Apply a powdercoat finish. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA1, "Paint Application Specification No. 1: Shop, Field, and Maintenances Painting of Steel," for shop priming apply at spreading rates recommended by coating manufacturer.
   1. Color: Match existing ornamental railing color and sheen indicated in Section 2.04 above.

PART 3 EXECUTION

3.01 INSTALLATION, GENERAL

A. Fit exposed connections together to form tight, hairline joints.

B. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing handrails and railings. Set handrails and railings accurately in location, alignment, and elevation, measured from established lines and levels and free from rack.
   1. Do not weld, cut, or abrade surfaces of railing components that have been coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
   2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
   3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

C. Corrosion Protection: Coat concealed surfaces of copper alloys that will be in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

D. Adjust handrails and railings before anchoring to ensure alignment at abutting joints. Space posts at interval indicated, but not less than that required by structural loads.

E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing handrails and railings and for properly transferring loads to in-place construction.

3.02 RAILING CONNECTIONS

A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Use wood blocks and padding to prevent damage to railing members and fittings. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of handrails and railings.

B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in shop or in field.

C. Expansion Joints: Install expansion joints at locations indicated but not further apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side; fasten internal sleeve securely to one side; locate joint within 6 inches (150 mm) of post.

3.03 INSTALLING RAILINGS

A. General: Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation.
   1. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
   2. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (5 mm in 3 m).

B. Anchor posts in concrete by inserting into formed or core-drilled holes and grouting annular space.

C. Anchor railing ends to concrete and masonry with round flanges connected to railing ends and anchored to wall construction with anchors and bolts.

D. Attach handrails to wall with wall brackets.
   1. Use type of bracket with predrilled hole for exposed bolt anchorage.
   2. Select one of three subparagraphs below if steel studs are used.
   3. For steel-framed partitions, use hanger or lag bolts set into fire-retardant-treated wood backing between studs.

3.04 ANCHORING POSTS

A. Form or core-drill holes not less than 5 inches (125 mm) deep in diameter(s) shown on the drawings for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with the following anchoring material, mixed and placed to comply with anchoring material manufacturer's written instructions:
   1. Nonshrink, nonmetallic grout or anchoring cement.

B. Cover anchorage joint with a cover shoe of same metal as post, set in mastic and caulked with sealant around post at exterior.

C. Cover anchorage joint with a flange of same metal as post, attached to post as follows:
   1. By set screws.

3.05 CLEANING

A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material.

B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and repair galvanizing to comply with ASTM A 780.

3.06 PROTECTION

A. Protect finishes of handrails and railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at the time of Substantial Completion.

B. Restore finishes damaged during installation and construction period so no evidence remains of correction work. Return items that cannot be refinished in field to shop; make required alterations and refinish entire unit, or provide new units.

END OF SECTION 057200

SECTION 057310 - SRS STANDOFF GLASS RAILING SYSTEM THROUGH GLASS POINT SUPPORTED TEMPERED GLASS GUARD ASSEMBLIES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Through Glass Point Supported Tempered Glass Guard Assemblies.

1.02 RELATED SECTIONS

A. Section 099123 - Interior Painting

1.03 REFERENCES

A. ASTM C 1048 – Standard Specification for Heat Treated Flat Glass – Kind HS, Kind FT Coated and Uncoated Glass.

B. NAAMM Metal Finishes Manual; national Association of Architectural Metal Manufacturers

C. AAMA CW-12-84 Structural Properties of Glass.

D. ASTM E 2358-04 Standard specification for the Performance of Glass in Permanent Glass Railing Systems, Guards and Balustrades.

1.04 SYSTEM DESCRIPTION

A. Performance Requirements for Guard Assembly:
   1. Support distributed load of 50 pounds per linear foot (0.73kN/M), applied horizontally at right angles in any direction to the top/grab rail.
   2. Support concentrated horizontal load of 200 pounds (0.89kN), applied in any direction at any point along top/grab rail.
   3. 50 lbs (0.22kN) on 1 sf (0.093m2) perpendicular to guard at any location.
   4. Wind loads 25 psf or as otherwise specified.
   5. These loads need not to be assumed to act concurrently.
   6. Maximum deflection at top of glass is height/24.
   7. Glazing shall comply with section 2406.1 of the 2012 IBC.

1.05 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data: Submit Manufacturer’s technical product data for railing components and accessories.

C. Shop Drawings: Stamped and Signed Engineered dimensioned drawings of railing assemblies indicating the following:
   1. Elevations; include joint locations, transitions, and terminations.
   2. Glass light fabrication plans with dimensions, holes and finishes.
   3. Point support layout, details and attachment to support structure.
   4. Manufacturer’s installation and maintenance instructions.
   5. Demonstrate compliance with 2406.1 of the 2012 IBC

D. Engineering Design Report: Calculations showing point support reactions and glass stresses.

E. Samples of manufacturer’s metal finishes and guardrail glazing.

F. Mock-up: Provide a one panel mock-up at first floor diagonal stair run.

1.06 QUALITY ASSURANCE

A. Components and installation are to be in accordance with state and local building codes.

B. All components and fittings are furnished by the same manufacturer.

C. All glass to be fabricated by an approved temperer to a tolerance of 1/32” for the light size and hole locations.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials properly protected against damage to finished surfaces during transit.

B. Inspect materials upon delivery for damage. Unless minor defects can be made to meet the Architect's specifications and satisfaction, damaged parts shall be removed and replaced.

C. Store materials at building site under cover in a dry location.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Acceptable Manufacturer: C.R. Laurence Co., Inc. (CRL)
Tel: (800) 421-6144 Fax: (800) 587-7501
Email: railings@crlaurence.com
www.crlaurence.com

B. Manufacturers of equivalent products will be considered for substitution in accordance with provisions of Section 01630 - Product Substitution Procedures.

2.02 MATERIALS

A. Aluminum Components: Conforming to ASTM B 221/ASTM B221M, Alloy 6063- T52.

B. Stainless Steel Components: Conforming to ASTM A 666, Type 304.

2.03 COMPONENTS

A. Glazing: Fully laminated tempered using 16 CFR Part 1201/ASTM C 1048 Kind FT safety glazing, Quality q3, using Du Pont Sentryglas Interlayers, or approved equal.
   1. Thickness: 3/4 inch (19mm).
   2. Color: Clear, non-glare with exposed, polished, eased edges
   3. Safety glazing shall have a minimum category II classification of glazing using CPSC 16 CFR Part 1201.

B. CRL Standoff fittings.

C. Fittings:
   1. Profile: 2" round standoff fitting w/rectangular backplate for concrete application.
   2. Finish: Powder coat to match wall paint color
      a. Contractor shall repair any dings or scratches that occur during construction.

D. Fasteners: Types and sizes indicated in shop drawings and engineering report.

2.04 FABRICATION

A. A. Fabricate handrail assembly components to lengths and configurations complying with shop drawings.

B. B. Machine joint edges smooth and plane to produce hairline seams when site assembled; supply concealed sleeve connectors for joints.

C. C. Isolate dissimilar metals to prevent electrolytic action by applying primer to concealed surfaces of metal components.

PART 3 INSTALLATION

3.01 GENERAL

A. Install handrails in accordance with manufacturer's recommended installation instructions and approved shop drawings. Standoffs shall be located to a tolerance of 1/32". All bushings, spacers, bearing pads and other components shown in the shop drawings must be properly installed.

3.02 CLEANING

A. Clean glazing surfaces after installation, complying with requirements contained in the manufacturer's instructions. Remove excess glazing sealant compounds, dirt or other substances.

B. Remove protective films from metal surfaces.

C. Clean railing surfaces with clean water and mild detergent. Do not use abrasive chemicals, detergents, or other implements that may mar or gouge the material.

3.03 PROTECTION

A. Institute protective measures required throughout the remainder of the construction period to ensure that all the materials do not incur any damage or deterioration.

B. Repair components damaged by subsequent construction activities in accordance with manufacturer's recommendations; replace damaged components that cannot be repaired to Architect's acceptance.

END OF SECTION 057310

SECTION 062000 - FINISH CARPENTRY

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Finish carpentry items.

B. Wood handrails and attachment accessories.

1.02 RELATED REQUIREMENTS

A. Section 057310: Stand-off Glass Railings.

B. Section 099123 - INTERIOR PAINTING: Painting and finishing of finish carpentry items.

1.03 REFERENCE STANDARDS

A. AWI (QCP) - Quality Certification Program, www.awiqcp.org; current edition at www.awiqcp.org.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements for submittal procedures.

B. Product Data:
   1. Provide instructions for attachment hardware and wall brackets.

C. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details, and accessories.
   1. Provide the information required by AWI/AWMAC/WI (AWS).
   2. Include certification program label.

D. Samples: Submit two samples of wood railing 6 inch (____ mm) long.

1.05 QUALITY ASSURANCE

A. Fabricator Qualifications: Company specializing in fabricating the products specified in this section with minimum five years of documented experience.
   1. Accredited participant in the specified certification program prior to the commencement of fabrication and throughout the duration of the project.

B. Quality Certification: Provide AWI Quality Certification Program (QCP) inspection report and quality certification of completed work.
   1. Provide labels or certificates indicating that the work complies with requirements of AWI/AWMAC/WI (AWS) Grade or Grades specified.
   2. This project has been registered as AWI/QCP project number _____.
   3. Prior to delivery to the site provide shop drawings with certification labels.
   4. Provide labels on each product when required by certification program.
   5. Upon completion of installation provide certificate certifying that the installation and products meet the specified requirements.
   6. Arrange and pay for inspections required for certification.
   7. Replace, repair, or rework all work for which certification is refused.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Protect work from moisture damage.

PART 2 PRODUCTS

2.01 FINISH CARPENTRY ITEMS

A. Quality Grade: Unless otherwise indicated provide products of quality specified by AWI/AWMAC/WI (AWS) for Premium Grade.

B. Interior Woodwork Items:
   1. Handrails: Oak (similar to existing); prepare for stained finish. Provide a wood end cap at each end of wall mounted and rail mounted handrails. Refer to drawings for end cap design.

2.02 WOOD-BASED COMPONENTS

A. Wood fabricated from old growth timber is not permitted.

B. Provide sustainably harvested wood, certified or labeled as specified in Section 016000.

2.03 FASTENINGS

A. Fasteners: Of size and type to suit application; _____ _____ finish in exposed locations.

2.04 ACCESSORIES

A. Wood Filler: Solvent base, tinted to match surface finish color.

B. Wall Brackets: Per Drawings.

C. [Post Mount]: [Per Drawings].

2.05 FABRICATION

A. Shop assemble work for delivery to site, permitting passage through building openings.

B. When necessary to cut and fit on site, provide materials with ample allowance for cutting. Provide trim for scribing and site cutting.

2.06 SHOP FINISHING

A. Sand work smooth and set exposed nails and screws.

B. Apply wood filler in exposed nail and screw indentations.

C. On items to receive transparent finishes, use wood filler that matches surrounding surfaces and is of type recommended for the applicable finish.

D. Finish work in accordance with AWI/AWMAC/WI (AWS), Section 5 - Finishing for grade specified and as follows:
   1. Transparent:
      a. System - 11, Polyurethane, Catalyzed.
      b. Stain: To match Architect's sample
         1) Sheen: Semigloss.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify adequacy of backing and support framing.

3.02 INSTALLATION

A. Install work in accordance with AWI/AWMAC/WI (AWS) requirements for grade indicated.

B. Set and secure materials and components in place, plumb and level.

C. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch (0.79 mm). Do not use additional overlay trim to conceal larger gaps.

3.03 PREPARATION FOR SITE FINISHING

A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand work smooth.

3.04 TOLERANCES

A. Maximum Variation from True Position: 1/16 inch (1.6 mm).

B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch (0.79 mm).

END OF SECTION 062000

SECTION 064001 - ARCHITECTURAL WOODWORK RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Refinishing of all existing architectural woodwork, including doors, door frames, base trim, stair railings, and other transparent finish woodwork.

B. Repairing existing architectural woodwork.

C. Modifications to, extensions of, and replication of existing architectural woodwork.

D. Finishing of new architectural woodwork to blend into and match existing work.

1.02 RELATED REQUIREMENTS

A. Section 057000 - Decorative Metal.

B. Section 096430 - Wood Flooring Restoration.

C. Section 090391 - Historic Interior Painting.

1.03 REFERENCE STANDARDS

A. ANSI A135.4 - American National Standard for Basic Hardboard; 2012.

B. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

C. BHMA A156.9 - American National Standard for Cabinet Hardware; Builders Hardware Manufacturers Association; 2010 (ANSI/BHMA A156.9).

1.04 1.04 ADMINISTRATIVE REQUIREMENTS

A. A. Preinstallation Meeting: Convene a preinstallation meeting not less than one week before starting work of this section; require attendance by all affected installers.

1.05 1.05 SUBMITTALS

A. See Section 013000 – Administrative Requirements for submittal procedures.

B. Shop Drawings: Indicate materials, component profiles, fastening methods, jointing details and accessories.

C. Product Data: Submit product data for each specified product.

D. Woodwork Refinishing Plan: Submit a written work plan listing proposed cleaning and refinishing materials and methods of treatment.
   1. Submit a draft work plan prior to performing test panels.
   2. Following completion of test panels, modify work plan to include revisions to the plan resulting from field testing.

E. Wood Samples: Submit the following, of 12-inch lengths:
   1. All historic wood profiles.
   2. All wood species.

F. Hardware Samples: Submit actual sample items of proposed replacement hardware demonstrating design, quality and finish.

1.06 1.06 QUALITY ASSURANCE

A. Contractor qualifications: Firm performing the work of this Section shall be a Restoration Specialist defined as an individual or firm of established reputation in building restoration (or, if newly organized, whose personnel have previously established a reputation in the field), who or which is regularly engaged in, and which maintains a regular force of workmen skilled in either (as applicable) manufacturing or fabricating items required by the contract, installing items required by the contract, performing on-site treatment of existing historic materials, or otherwise performing work required by the contract. The individual or firm shall have recent and documented experience in the restoration, replication, cleaning and refinishing historic architectural woodwork.

1.07 MOCK-UP

A. Woodwork repair test panels: Provide test panel for each type of repair, including the following:
   1. Dutchman repair to solid hardwood lumber.
   2. Patch minor hole (less than ¼ inch diameter hole).

B. Refinishing Test panels: Prepare sufficient number of test panels, including cleaning and stripping of existing finish and application of final finish.
   1. Test panels shall be sufficiently large to include all elements of each assembly, but not less than 4' x 4' in size.

1.08 FIELD CONDITIONS

A. Do not commence refinishing work until plaster work and other wet work are completed in work area.

B. During and after installation of architectural wood work, maintain temperature and humidity conditions in building spaces at same levels planned for occupancy.

PART 2 PRODUCTS

2.01 ARCHITECTURAL WOODWORK REPAIR MATERIALS

A. Hardwood lumber and veneers: Match species and grain characteristics at each location where Dutchman repair is indicated.

B. Adhesives: Use adhesives appropriate to each type of repair including, but not limited to, hide glue for setting of solid wood Dutchman.

C. Fasteners: Use mechanical fasteners only where original installation used mechanical fasteners such as finish nails and brass, flat-headed, slotted wood screws.

2.02 FABRICATION

A. Interior Woodwork grade: Provide premium grade interior woodwork complying with the referenced quality standard.

B. Wood moisture content: Comply with requirements of the referenced quality standard for wood moisturecontent in relation to ambient relative humidity during fabrication and in installation areas.

C. Fabricate woodwork to dimensions, profiles, and details to match existing adjacent conditions or as indicated on the Drawings.

2.03 INTERIOR STANDING AND RUNNING TRIM FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWI Section 300.

B. Quality grade: Premium.

C. Wood species: Match existing historic species.

D. Backout or groove backs of flat trim members and kerf backs of other wide, flat members except for members with ends exposed in finished work.

2.04 WOOD HANDRAILS FOR TRANSPARENT FINISH

A. Quality Standard: Comply with AWI Section 800.

B. Quality Grade: Premium.

C. Wood species: Match existing historic species.

D. Detailing: As indicated on Drawings.

2.05 FINISHING

A. Comply with referenced quality standard for sanding, filling countersunk fasteners, sealing concealed surfaces, and similar preparations for finishing architectural woodwork, as applicable for each unit of work.
   1. Backpriming: Apply one coat of sealer compatible with finish coats, to concealed surfaces of woodwork.

2.06 INTERIOR WOOD STAINS AND ACCESSORY MATERIALS

A. Open-Grain Wood Filler (for new wood only):
   1. Basis-of-design product: Sherwin-Williams Sher-Wood Fast-Dry Filler.

B. Interior Wood Stain.
   1. Custom Stain color to match Architect's sample.
   2. Basis-of-design product: Sherwin-Williams Sher-Wood Acrylic Conversion Coating.

C. Interior Clear Sanding Sealer:
   1. Basis-of-design product: Sherwin-Williams Sher-Wood Fast Dry Vinyl Sealer.

D. Interior Clear Top-coat Finish:
   1. Basis-of-design product: Sherwin-Williams Sher-Wood Kem Aqua Plus.

E. Sandpaper, steel wool: As required for preparation, staining, and finishing of woodwork.

PART 3 EXECUTION

3.01 ALTERATIONS TO EXISTING ARCHITECTURAL WOODWORK

A. Dutchman repairs to solid lumber: Repair deteriorated, split, or missing wood with Dutchman repairs for defects greater than 1/4 square inch in area (2 inch by 2 inch minimum).
   1. Neatly cut out defective material and enough sound wood to bond Dutchman to sound substrate.
   2. Form a prismatic void in existing wood with square corners and edges.
   3. Select Dutchman stock that matches wood species and grain characteristics of existing wood.
   4. Cut Dutchman to exactly fit void, with exposed portion matching original profile of woodwork, and grain of Dutchman insert parallel to original wood grain direction.
   5. Secure Dutchman with waterproof adhesive and clamp in place until glue is set.

B. Dutchman repairs to wood veneers for defects greater than 1/4 square inch in area (2 inch by 2 inch minimum).
   1. Cut out diamond-shaped portion of veneer where hole or defect occurs. Run length of diamond shape with direction of grain in wood veneer.
   2. Cut Dutchman to exact shape of diamond, with maximum 1/16-inch gap between edge of Dutchman and edge of veneer.

C. Filling of minor holes: Fill holes less than 1/4 square inch in size using wood filler.

D. Abrasion repairs: Sand out or plane out abrasions in woodwork where indicated. If sanding will remove or alter wood molded profiles, repair abrasions by means of a wood Dutchman.

3.02 REPAIR AND REFINISHING OF EXISTING ARCHITECTURAL WOODWORK

A. Quality Standards: Comply with AWI Section 1500 unless otherwise indicated.

B. General: Finish existing architectural woodwork in place as specified in this section.

C. Preparations for Finishing: Strip existing finish. Comply with referenced standards for sanding, filling and finishing as applicable to each area of work.

D. Repair all woodwork in original location without removing any frame parts unless indicated on Drawings.

E. Repair large gouges, severe cracks, and voids.

F. Refinish all existing woodwork to receive a transparent finish: Comply with requirements for grade, finish system, staining and sheen, with sheen measured on 60-degree gloss meter per ASTM D 523.
   1. Grade: Premium.
   2. Staining: Match Architect's selected area in building representing original stain color.
   3. Sheen: Satin.

G. Apply wood paste filler to new open-pore wood, as required to match existing woodwork.

H. Wood staining: Apply general coat of wood stain to match existing woodwork. Let stand and wipe off to match sample. Let dry one hour minimum.

I. Apply sanding sealer and let dry 10 minutes, minimum.

J. Finish sand vinyl sealer with 320 grit sandpaper.

K. Dry brush, light or burn edges.

L. Before topcoat finish is applied, clean all surfaces, free of dust and dirt.

M. Apply two-top coats in accordance with manufacturer's instructions, rubbing finish between coats. Control sheen to achieve a satin luster, as specified for refinishing existing woodwork.

END OF SECTION 064001

SECTION 079200 - JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Joint backings and accessories.

1.02 RELATED REQUIREMENTS

A. Section 092216 - Non-Structural Metal Framing: Sealing between framing and adjacent construction in acoustical and sound-rated walls and ceilings.

B. Section 086100 Wood Window Restoration.

C. Section 093100 Mosaic Tile Restoration.

1.03 REFERENCE STANDARDS

A. ASTM C661 - Standard Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer; 2006 (Reapproved 2011).

B. ASTM C794 - Standard Test Method for Adhesion-In-Peel of Elastomeric Joint Sealants; 2015.

C. ASTM C834 - Standard Specification for Latex Sealants; 2010.

D. ASTM C919 - Standard Practice for Use of Sealants in Acoustical Applications; 2012.

E. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2014.

F. ASTM C1087 - Standard Test Method for Determining Compatibility of Liquid-Applied Sealants with Accessories Used in Structural Glazing Systems; 2000 (Reapproved 2011).

G. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2013.

H. ASTM C1248 - Standard Test Method for Staining of Porous Substrate by Joint Sealants; 2008 (Reapproved 2012).

I. SWRI (VAL) - SWR Institute Validated Products directory; Sealant, Waterproofing and Restoration Institute; online at http://www.swrionline.org/ValidatedSealants.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.

1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.
2. List of backing materials approved for use with the specific product.
3. Substrates that product is known to satisfactorily adhere to and with which it is compatible.
4. Substrates the product should not be used on.
5. Substrates for which use of primer is required.
6. Substrates for which laboratory adhesion and/or compatibility testing is required.
7. Installation instructions, including precautions, limitations, and recommended backing materials and tools.
8. Sample product warranty.
9. Certification by manufacturer indicating that product complies with specification requirements.
10. SWRI Validation: Provide currently available sealant product validations as published by SWRI for specified sealants.

C. Product Data for Accessory Products: Submit manufacturer's technical data sheet for each product to be used, including physical characteristics, installation instructions, and recommended tools.

D. Color Cards for Selection: Where sealant color is not specified, submit manufacturer's color cards showing full range of colors available for selection.

E. Preconstruction Laboratory Test Reports: Submit at least four weeks prior to start of installation.

F. Preinstallation Field Adhesion Test Reports: Submit filled out Preinstallation Field Adhesion Test Reports log within 10 days after completion of tests; include bagged test samples and photographic records.

1.05 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

C. Preconstruction Laboratory Testing: Arrange for sealant manufacturer(s) to test each combination of sealant, substrate, backing, and accessories.
   1. Adhesion Testing: In accordance with ASTM C794.
   2. Compatibility Testing: In accordance with ASTM C1087.
   3. Stain Testing: In accordance with ASTM C1248; required only for stone substrates.
   4. Allow sufficient time for testing to avoid delaying the work.
   5. Deliver to manufacturer sufficient samples for testing.
   6. Report manufacturer's recommended corrective measures, if any, including primers or techniques not indicated in product data submittals.
   7. Testing is not required if sealant manufacturer provides data showing previous testing, not older than 24 months, that shows satisfactory adhesion, lack of staining, and compatibility.

D. Preinstallation Field Adhesion Test Plan: Include destructive field adhesion testing of one sample of each combination of sealant type and substrate, except interior acrylic latex sealants, and include the following for each tested sample.
   1. Identification of testing agency.
   2. Name(s) of sealant manufacturers' field representatives who will be observing
   3. Preinstallation Field Adhesion Test Log Form: Include the following data fields, with known information filled out.
      a. Test date.
      b. Copy of test method documents.
      c. Age of sealant upon date of testing.
      d. Test results, modeled after the sample form in the test method document.

E. Field Adhesion Test Procedures:
   1. Allow sealants to fully cure as recommended by manufacturer before testing.
   2. Have a copy of the test method document available during tests.
   3. Record the type of failure that occurred, other information required by test method, and the information required on the Field Quality Control Log.
   4. If any combination of sealant type and substrate does not show evidence of minimum adhesion or shows cohesion failure before minimum adhesion, report results to Architect.

F. Field Adhesion Tests of Joints: Test for adhesion using most appropriate method in accordance with ASTM C1521, or other applicable method as recommended by manufacturer.

1.06 WARRANTY

A. See Section 017800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after the Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal, exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Nonsag Sealants: Permits application in joints on vertical surfaces without sagging or slumping.
   1. BASF Construction Chemicals-Building Systems: www.buildingsystems.basf.com.

2. Dow Corning Corporation: www.dowcorning.com.
3. Tremco Global Sealants: www.tremcosealants.com.
4. Sika Corporation: www.usa-sika.com.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:
   1. Exterior Joints: Seal open joints, as indicated on Drawings. Exterior joints to be sealed include, but are not limited to, the following items.
      a. Exterior horizontal traffic, isolation and contraction joints in cast-in-place concrete and bed and intermediate joints in granite stairs.
      b. Exterior perimeter joints between granite, marble or concrete and sandstone wall surfaces..
      c. Exterior control and expansion joints in horizontal traffic surfaces and between concrete sidewalks and granite base and in granite stairs.
      d. Other joints indicated below.
   2. Interior Joints: Seal interior joints as indicated on Drawings. Interior joints to be sealed include, but are not limited to, the following items.
      a. Interior marble expansion, control, and isolation joints in horizontal traffic surfaces..
      b. Interior joints between plumbing fixtures and adjoining walls and floors..
      c. Vertical joints on exposed surfaces of interior walls and partitions.
      d. Perimeter joints between interior wall surfaces and frames of interior doors, windows, and other frames and adjacent construction.
   3. Do not seal the following types of joints.
      a. Intentional weepholes in masonry.
      b. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
      c. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
      d. Joints where installation of sealant is specified in another section.

B. Exterior Joints: Use nonsag non-staining silicone sealant, or polyurethane sealant, unless otherwise indicated.
   1. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant; Type __.
   2. Joints between exterior stone flooring and wall surfaces: Non-staining silicone sealant;

C. Interior Joints: Use nonsag polyurethane sealant, Type ____, unless otherwise indicated.
   1. Wall and Ceiling Joints in Non-Wet Areas: Acrylic emulsion latex sealant; Type _____.

2.03 NONSAG JOINT SEALANTS

A. Type SS-1 and SS-2 - Non-Staining Silicone Sealant: ASTM C920, Grade NS, Uses M and A; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 50 percent, minimum.
   2. Non-Staining To Porous Stone: Non-staining to light-colored natural stone when tested in accordance with ASTM C1248.
   3. Dirt Pick-Up: Reduced dirt pick-up compared to other silicone sealants.
   4. Color: To be selected by Architect from manufacturer's full range.
   5. Cure Type: Single-component, neutral moisture curing.
   6. Products:
      a. SS-1 Basis-of-Design (non-traffic locations): Dow Corning Corporation; 790 Silicone Building Sealant: www.dowcorning.com.
      b. SS-2 Basis-of-Design: Dow Corning Corporation (traffic locations); 795 Silicone Building Sealant: www.dowcorning.com.

B. Type US-1 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multicomponent; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.

2. Color: To be selected by Architect from manufacturer's full range.
3. Products:
    a. Basis-of-Design: Sika Corporation; Sikaflex-2c NS: www.usa-sika.com.

C. Type US-2 - Nonsag "Traffic-Grade" Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single or multicomponent; explicitly approved by manufacturer for continuous water immersion and traffic without the necessity to recess sealant below traffic surface.
1. Movement Capability: Plus and minus 25 percent, minimum.
2. Hardness Range: 40 to 50, Shore A, when tested in accordance with ASTM C661.
3. Color: To be selected by Architect from manufacturer's full range.
4. Products:
    a. Basis-of-Design: Sika Corporation; Sikaflex-2cNSTG: www.usa-sika.com..

D. Type LS-1 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
1. Color: Standard colors matching finished surfaces, Type OP (opaque).
2. Grade: ASTM C834; Grade - Minus 18 Degrees C.
3. Products:
    a. Basis-of-Design: Sherwin-Williams Company; 850A Acrylic Latex Caulk: www.sherwin-williams.com.

2.04 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.
1. Type for Joints Not Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type O - Open Cell Polyurethane.
2. Type for Joints Subject to Pedestrian or Vehicular Traffic: ASTM C1330; Type B - Bi-Cellular Polyethylene.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Masking Tape: Self-adhesive, nonabsorbent, non-staining, removable without adhesive residue, and compatible with surfaces adjacent to joints and sealants.

D. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

E. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

D. Preinstallation Adhesion Testing: Install a sample for each test location shown in the test plan.
1. Test each sample as specified in PART 1 under QUALITY ASSURANCE article.
2. Notify Architect of date and time that tests will be performed, at least 7 days in advance.
3. Arrange for sealant manufacturer's technical representative to be present during tests.
4. Record each test on Preinstallation Adhesion Test Log as indicated.
5. If any sample fails, review products and installation procedures, consult manufacturer, or take whatever other measures are necessary to ensure adhesion; re-test in a different location; if unable to obtain satisfactory adhesion, report to Architect.
6. After completion of tests, remove remaining sample material and prepare joint for new sealant installation.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

E. Concrete Floor Joints That Will Be Exposed in Completed Work: Test joint filler in inconspicuous area to verify that it does not stain or discolor slab.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Perform acoustical sealant application work in accordance with ASTM C919.

D. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

E. Measure joint dimensions and size joint backers to achieve the following, unless otherwise indicated:
   1. Width/depth ratio of 2:1.
   2. Neck dimension no greater than 1/3 of the joint width.
   3. Surface bond area on each side not less than 75 percent of joint width.

F. Install bond breaker backing tape where backer rod cannot be used.

G. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

H. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

I. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

A. Perform field quality control inspection/testing as specified in PART 1 under QUALITY ASSURANCE article.

B. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION 079200

SECTION 086100 - WOOD WINDOW RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Restoration of in-place window jambs, frames, stops, and sills.

B. Replicated windows and stops as indicated on the Drawings.

C. Repair of deteriorated wood.

D. Refinishing of existing wood windows.

E. Replacement of missing window hardware.

F. Resealing existing windows.

G. Replacing broken glass in wood windows.

1.02 RELATED REQUIREMENTS

A. Section 079200 – Joint Sealants: Sealing joints between frames and adjacent construction.

B. Section 099123 – Interior Painting: Site finishing wood surfaces.

1.03 REFERENCE STANDARDS

A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights; American Architectural Manufacturers Association/Window and Door Manufacturers Association/Canadian Standards Association; 2011.

B. ASCE 7 - Minimum Design Loads for Buildings and Other Structures; 2011.

C. AWI/AWMAC/WI (AWS) - Architectural Woodwork Standards; 2014.

D. WDMA I.S. 1A - Interior Architectural Wood Flush Doors; Window and Door Manufacturers Association; 2013. (ANSI/WDMA I.S. 1A)

1.04 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Convene one week before starting work of this section.

1.05 SUBMITTALS

A. Product Data Restored Units: Manufacturer's technical information, label analysis and application instructions for each material proposed use.

B. Product Data Replicated Units: Include construction details, material descriptions, fabrication methods, dimensions of individual components and profiles, finishes and operating instructions for each type of wood window indicated.

C. Window Schedule: Produce schedule including both restored and replicated units with the following information:
   1. Written plan or method for identifying each removed window sash for re-installation into its original location.
   2. Type, style, function size and finish of each window.
   3. Fastening and other pertinent information.
   4. Mounting locations for hardware.

D. Shop Drawings: Include plans, elevations, sections, details, hardware, attachments to other work, operational clearances and the following:
   1. Joinery details.
   2. Expansion provisions.
   3. Flashing details.
   4. Weather-stripping details.
   5. Glazing details.
   6. Hardware locations.

E. Samples for Verification – Restored Units: For existing wood window components required, prepare on samples indicated below:

1. Stile and Rail Members: Prepare for approval a sample sash chosen by Architect to demonstrate liquid wood and wood epoxy system. Sample to match surrounding wood in surface appearance and texture.
2. Architect reserves the right to require additional samples that show fabrication techniques and workmanship restoration.

F. Samples for Verification – Replicated Units: For replicated wood window components required, including profile, size and species, but not finish prepared on samples of size indicated below:
1. Stile and Rail Members: Two full corner sections (12 inches by 12 inches) of each existing window type indicated on Drawings.
2. Window Stops: Two, six-inch long samples of each existing window stop type encountered.

G. Samples of New Hardware: Submit for type and finish to match existing missing hardware.

H. Historic Treatment Program: Submit description of materials, methods, equipment and sequence of operations to be used for each phase of window restoration processes.

1.06 MOCK-UPS

A. At start of project, Contractor shall completely refinish one designated window in-place. Owner's Representative and Architect shall observe each stage of work on window and approve results prior to continuing with additional phases. Methodology and completed window shall be used as standard of comparison for all work.

1.07 QUALITY ASSURANCE

A. Manufacturer and Installer Qualifications: Company specializing in restoration and replication of wood windows with minimum five years of documented experience. Submit resume of each carpenter and finisher documenting required experience.

B. Source Limitations: Obtain replicated wood windows through one source from a single manufacturer.

C. Do not modify intended aesthetic effects, as judged solely by Architect, without Architect's approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

D. Comply with Architectural Woodwork Institute (AWI) Quality Standards.

1.08 SEQUENCING AND SCHEDULING

A. Rehabilitation of windows shall be completed before doing any interior restoration/ rehabilitation work to insure weather-tight integrity of interior spaces.

PART 2 PRODUCTS

2.01 WOOD WINDOWS

A. Wood Windows: Wood frame and sash, factory fabricated and assembled.
1. Exterior Finish: Primed and painted to match existing.
2. Interior Finish: Unfinished, for transparent finish to match existing.
3. Color: Match existing.
4. Configuration: Match existing.
5. Window Product Type: C - Casement window, in accordance with AAMA/WDMA/CSA 101/I.S.2/A440.
6. Site Glazed; dry glazing method.
7. Wood Species: Match existing.
8. Frame and Sash Members: Match existing construction.
9. Transparent Finish: Scarf joints permitted if wood matches in color and grain texture.
10. Weather Stop Flange: Continuous at perimeter of unit.
11. Clearances and Shim Spacing: Minimum required for installation and dynamic movement of perimeter seal.
12. Fasteners: Concealed from view.
13. Internal Drainage of Glazing Spaces to Exterior: Weep holes.

14. Operable Units: Double weather-stripped.

2.02 COMPONENTS

A. Wood: Kiln dried to a moisture content of 6 to 12 percent at time of fabrication, free of visible finger joints, clear stain, knots, pitch pockets, and surface checks larger than 1/32 inch (0.8 mm) deep by 2 inches (51 mm) wide; water-repellent preservative treated.

B. Glazing Stops: Material and finish to match sash members.

C. Weather-stripping: Material and finish to match existing.

D. Replaceable weather seals: Comply with AAMA 701/702.

E. Wood Epoxy and Liquid Wood: Conform to manufacturer's application requirements.
   1. Liquid Wood by Abatron, Inc.
   2. Wood Epox by Abatron, Inc.
   3. Or Approved Equal.

F. Accessories: Provide related flashings, and anchorage and attachment devices.

G. Sealant for Setting Sills, Stools, Aprons, and Sill Flashing: Non-curing butyl type.

PART 3 EXECUTION

3.01 EXAMINATION

A. Conduct a window-by-window survey to determine existing conditions and identify the specific work needs of each window. Coordinate with the Drawings.

B. For each window type, the survey should include color photographs which show design details for comparison to new work, and existing conditions.
   1. Full frame views, both interior and exterior.
   2. Close-up views of typical details, both interior and exterior.

C. Take all necessary field measurements and verify all installation conditions prior to ordering and fabrication of material.

D. Coordinate work with installation of new sashes to minimize length of time sashes are removed from frame.

E. Protect window openings with minimum of ½" thick plywood panels during period of sash removal.

3.02 GENERAL RESTORATION SEQUENCE

A. Carefully remove window stops, sash and trim as required. Remove only those features which cannot be repaired on-site. All disassembled parts should be indelibly marked or stamped on hidden parts so they can be returned to their exact location.

B. Replace rotted window sills as required.

C. Repair, replace, or rebuild all rotted or deteriorated wood features. These can include but are not limited to stiles, rails, muntins, joints, frame, trim. New work shall match existing profiles or shapes in every respect and shall be flush with existing adjacent surfaces.

D. Remove paint/finish from both interior and exterior surfaces.

E. Remove all deteriorated glazing putty and broken glass. Replace glass to match existing and reglaze with a flexible elastomeric glazing compound. Clean the existing historic glass.

F. Reinstall windows. Inspect pull chains and weights at all double hung windows (as occurs) and adjust, clean or replace as required to ensure proper operation. Lubricate all working parts to assure smooth operation.

G. Provide new weatherstripping as required.

H. Refinish both interior and exterior sides of sash, frame and trim with appropriate paint, stain or natural finish as specified.

I. Hardware:

1. All window hardware shall be removed, marked for proper room number and location, boxed or packaged, and collected in a central location for the Contractor who shall clean and polish all the hardware before reinstallation.
2. All hardware to be removed before paint stripping, cleaned to bare metal and repaired to its original condition.
3. Where hardware is missing or damaged, provide new hardware of same design and material as original hardware.

J. Make final adjustments to weatherstripping and window operation.

3.03 WINDOW RESTORATION - GENERAL

A. General: Restore or replace frames and sills as shown on the Drawings using the methods specified in this section.

B. Performance requirements for wood window restoration:
1. Replace all missing or otherwise defective rotted trim, stops and parting beads of window frames indicated. Finished windows shall be fully intact, structurally sound and weathertight. Patch holes, indentations, gouges, etc. using epoxy wood filler for holes less than 1”x1”x1/2” deep and wood Dutchmen for holes larger than 1”x1”x1/2” deep.
2. Sills: Repair or replace as indicated on Drawings. For new sills, match design and profile of existing sills.

3.04 PREPARATION

A. Clean and prepare stripped surfaces to be epoxied in accordance with the manufacturer’s instructions for substrate condition and as specified.
1. Remove all debris from frame, including loose dirt inside window frames accessible from jamb access panels.
2. Remove all extraneous nails, staples, bolts, hooks, etc. form window and wood trim. Protect frame and opening from weather. Dry all wood to moisture content below 17%.

B. Liquid Wood: Preparation for liquid wood or epoxy must be clean and dried by washing, degreasing, scraping and sanding. The best wood preparation for wood epoxy is impregnating and coating the cleaned surface with Liquid Wood.

C. Sash Removal: All sashes are to be removed and restored in accordance with the Work as indicated on the Drawings.

D. Work-in-place: All other window components such as the trim, exterior stops and sills may be worked on in-place at the Contractor’s discretion.

3.05 RESTORATION PROCESS

A. Windows
1. Inspect all frame components for condition. Where frame repairs are required, remove window from the inside by removing the interior stop and removing any weatherstripping. Disassemble frame to the extent required and remove deteriorated components. Replace with replicated components.
2. Tighten loose and open joints in frame using waterproof glue and finishing nails properly countersunk. Fill all joints which cannot be closed without dismantling window and fill all other holes in wood with non-shrink epoxy wood filler.
3. Dutchman repairs: Where practical, repair deteriorated, split, or missing wood with Dutchman repairs.
    a. Neatly cut out defective material and enough sound wood to bond Dutchman to sound substrate. Form a prismatic void in existing wood with square corner and edges. Cut Dutchman exactly to fit void, with exposed portion matching original profile of woodwork and grain of Dutchman inserted parallel to original wood grain direction.
    b. Secure Dutchman with waterproof adhesive and clamp in place until wood is set.
4. Mechanically sand tops and sides to a smooth surface starting with 100 grit working up to 220 grit.
5. Mechanically sand sill to bare wood starting with 80 grit and working up to 220 grit. If necessary, strip with Back to Nature Speed Ready Strip HS50.

6. Replace caulking with Sherwin-Williams siliconized latex caulk 950A.
7. Fill miscellaneous holes, cracks and open joints in woodwork with Bondo all-purpose putty 772-20052, or approved equal.
8. Severely damaged areas may require Minwax Wood Hardener 4365805 or approved equal.
9. Sand to smooth surface.
10. Treat all unpainted exterior and concealed wood surfaces with wood preservative.
11. Prime paint all surfaces to be exposed to exterior with one coat of exterior primer, Sherwin-Williams Duration Exterior Acrylic Coating, or approved equal. Color and sheen to match existing window trim.
12. Finish with two coats Sherwin-Williams Duration Exterior Acrylic Coating, or approved equal.

B. Exterior Sill and Frame
1. Remove any weatherstripping and sealant at trim and exterior stop.
2. Strip paint. Carefully examine sill and frame and remove any loose or deteriorated wood or wood filler. Use Liquid Wood to consolidate any wood area where dry rot or extensive damage is found after stripping the paint. Apply wood epoxy on any cracked, voids or depressions in the sill. Finish to match surrounding wood surface and Section 099123. Force epoxy into cracks and holes so entire crack or hole is filled. Finish so wood surface is smooth and flush.

3.06 NEW WOOD WINDOWS

A. Using existing window type parts as a template, exactly replicate original wood window, custom-sized for existing openings and matching original construction. Provide weatherstripping and hardware to match existing construction if missing.
1. Colors: Exterior shall be painted to match existing adjacent windows. Interior shall be stained to match Architect's sample.

3.07 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and other irregularities.

C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment with adjacent work.

D. Install sills, stools, and aprons.

E. Set sill members and sill flashing in continuous bead of sealant.

F. Provide thermal isolation where components penetrate or disrupt building insulation. Pack fibrous insulation in shim spaces at perimeter of assembly to maintain continuity of thermal barrier.

G. Install operating hardware.

H. Install glass.

I. Finish exterior surfaces with opaque material as specified in Section 099123.

J. Finish interior surfaces with transparent materials as specified in Section 099123.

3.08 ADJUSTING

A. Adjust hardware for smooth operation and secure weathertight enclosure.

3.09 CLEANING

A. Remove protective material from factory finished surfaces.

B. Wash surfaces by method recommended and acceptable by window manufacturer; rinse and wipe surfaces clean.

C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to sealant manufacturer.

D. Remove and replace glass that has been broken, chipped, cracked, abraded, or damaged during construction period.

3.10 PROTECTION

A. Begin and maintain protection and other precautions required through the remainder of construction period to ensure that newly rehabilitated window units will not be damaged throughout the remainder of any restoration or rehabilitation work.

END OF SECTION 086100

SECTION 092000 - GYPSUM PLASTER RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum plastering.

B. Metal lath.

C. Metal accessories.

D. Repair and patching of deteriorated or damaged plaster.

1.02 RELATED REQUIREMENTS

A. Section 017000 - Execution and Closeout Requirements: Cutting and Patching.

B. Section 092216 - Non-structural Metal Framing.

C. Section 092613 - Gypsum Veneer Plastering.

1.03 REFERENCE STANDARDS

A. ASTM C847 - Standard Specification for Metal Lath Lathing and Furring; 2003 (Reapproved 2013).

B. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring; 2003 (Reapproved 2013).

C. ASTM C842 - Standard Specification for Application of Interior Gypsum Plaster; 2005 (Reapproved 2010) e1.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide data on plaster materials, characteristics, and limitations of products specified.

C. Samples: Submit two samples, 12 x 12 inch (304.8 x 304.8 mm) in size illustrating finish color and texture.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years documented experience working with historical plaster restoration.

B. Workers: All plasters shall be skilled in plastering trade with a minimum of ten documented years in the plastering trade. Furnish written verification to Architect.

C. Coordination of Work: Coordinate layout and installation of suspension system components for suspended ceilings with other work installed around, supported by or penetrating through ceiling including light fixtures, smoke detectors, access panels and HVAC ductwork and grilles.

1.06 MOCK-UP

A. Construct two separate mock-ups for interior wall plaster and ceiling plaster, 4 feet 1200 mm) long by 4 feet (1200 mm) wide, illustrating surface finish and color, texture and other visual characteristics.

B. Locate where directed by Architect.

C. Notify Architect 7 days in advance of the dates and times when mockups will be constructed.

D. Demonstrate the proposed range of aesthetic affects and workmanship.

E. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed plaster work.

F. Mock-up may remain as part of the Work.

1.07 FIELD CONDITIONS

A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F (10 degrees C) or over 80 degrees F (27 degrees C).

B. Maintain minimum ambient temperature of 50 degrees F (10 degrees C) during and after installation of plaster.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Obtain lath and plaster from one source and by a single manufacturer.
   1. National Gypsum Company.
   2. United States Gypsum Company.
   3. Approved Equal.

2.02 PLASTER MATERIALS

A. Gypsum Neat Plaster: ASTM C28.

B. Lime: ASTM C206, Type S; special finishing hydrated lime.

C. Aggregate for Base Coats: ASTM C35; sand and lightweight aggregate.

D. Aggregate for Finish Coats: As specified in ASTM C84.

2.03 LATH

A. Expanded metal lath: ASTM C847, fabricated from uncoated or zinc-coated (galvanized) steel sheet and with uncoated steel sheet coated with corrosion-resistant coating after fabrication into lath.
   1. Diamond Mesh Metal Lath: ASTM C847, galvanized; flat.
      a. Weight: 3.4 lb./sq. yd (1.8 kg/sq m).
   2. Flat Rib Metal Lath: ASTM C847, galvanized; 1/8 inch (3 mm) thick.
      a. Weight: 3.4 lb/sq yd (1.8 kg/sq m).

2.04 ACCESSORIES

A. General: Comply with material provisions of ASTM C841 and the requirements indicated below; coordinate depth of accessories with thicknesses and number of plaster coats required.
   1. Galvanized steel components: Fabricated from zinc-coated (galvanized) steel sheet complying the ASTM A653, G40 (ASTM A 653M, Z90) minimum coating designation.

B. Metal Cornerbeads: Type as indicated below, fabricated from zinc-coated (galvanized) sheet.
   1. Type: Small nose with expanded flanges, unless otherwise indicated.
   2. Type: Small nose with perforated flanged, for use on curved corners.

C. Strip reinforcement: Smooth-edge strips of expanded metal lath fabricated from uncoated or zinc-coated (galvanized) steel sheet, with uncoated steel sheet coated after fabrication; in the following forms:
   1. Cornite: Strips bent lengthwise in center for internal plaster angles not otherwise reinforced by metal lath lapped or carried around.
   2. Stripite: Flat strips for reinforcing joints in gypsum lath, non-metallic bases, and between dissimilar plaster bases.

D. Casing Beads: Square-edged style with short or expanded flanges to suit kinds of plaster bases indicated; of zinc-coated (galvanized) steel.

2.05 MISCELLANEOUS MATERIALS:

A. Water for mixing and finishing plaster. Potable and free of substances capable of affecting plaster set or damaging plaster, lath or accessories.

B. Bonding Compound: ASTM C631.

C. Steel drill Screws complying with ASTM C954 for fasting metal or gypsum lath to steel members 0.033 to 0.112 inch (0.84 to 2.84 mm) thick.

2.06 PLASTER MIXES

A. Base Coat: Comply with ASTM C842 and manufacturer's written instructions for plaster base-coat proportions that correspond to application methods and plaster bases indicated below:

1. Three-Coat Work over Metal Lath: Base coats as indicated below:
    a. Scratch Coat: Gypsum neat plaster with job-mixed sand.
    b. Brown Coat: Gypsum neat plaster with job-mixed sand.

B. Finish Coats: Proportion material for finish coats to comply with ASTM C842 for each type of finish coat and texture indicated as required to match existing.

2.07 MIXING

A. Mechanically mix cementitious and aggregate materials for plasters to comply with applicable referenced application standard and with recommendations of plaster manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates to which plaster attaches or abuts for compliance with requirements for installation tolerances and other conditions affecting performance of plaster installation. Do not proceed with installation until satisfactory conditions have been corrected.

3.02 PREPARATION

A. Provide and maintain waterproof protection at indoor source of water, under mixing boxes and gaging barrels. Contractor shall be responsible for damage incurred from mixing, handling and applying plaster and from use of scaffolding and other equipment and tools used in the performance of this work.

B. Cover and protect all adjoining surfaces, material and finishes during plaster work.

3.03 INSTALLATION OF LATH AND FURRING, GENERAL

A. Interior lathing and furring: Install materials indicated for plaster to comply with ASTM C 841.

B. Install supplementary framing, blocking, and bracing at terminations in work and for support of fixtures, equipment, services, heavy trim, and similar work to comply with details indicated, or to comply with applicable written instructions of plaster manufacturer or, if not available, of “USG’s Gypsum Construction Handbook”.

C. Where lathing and metal support system abuts building structure horizontally and where partition or wall abuts overhead structure, sufficiently isolate from structural movement to prevent transfer of loading form building structure. Install slip- or cushion-type joints to absorb deflections but maintain lateral support.
    1. Frame both sides of control joints independently and do not bridge joints with furring and lathing accessories.

3.04 INSTALLATION OF PLASTERING ACCESSORIES

A. General: Comply with referenced lathing and furring installation standards for provision and location of plaster accessories of type indicated. Miter or cope accessories at corners; install with tight joints and in alignment. Attach accessories securely to plaster bases to hold accessories in place and in alignment during plastering.

B. Accessories: Provide the following types to comply with requirements indicated for location:
    1. Cornerbeads: Install at external corners.
    2. Casing Beads: Install at terminations of plaster work, except where plaster passes behind and is concealed by other work and where metal screeds, bases, or frames act as casing beads.

3.05 PLASTER APPLICATION GENERAL

A. Examine surfaces to receive plaster finish prior to starting application. Clean surfaces free of dust, oil, laitance and efflorescence.

B. Field verify grounds, frames, furring, screeds, corner beads, casing and control joints are in place and secure. Notify Architect of conditions unsatisfactory to the application of plaster. Do not start application in areas where unsatisfactory conditions have not been corrected.

C. Apply plaster in accordance with ASTM Standards C 842 for Gypsum Plaster to a total finished thickness of 1 inch unless otherwise noted. Apply no coat in a thickness greater than ½”. If base

irregularities required thicknesses greater than those specified, apply a succession of coats no more than ½" thick each and to avoid checking or cracking of plaster.

D. Prepare monolithic surfaces for bonded base coats and use bonding compound or agent to comply with requirements of referenced plaster application standards for conditioning of monolithic surfaces.

E. Perform cutting and patching of plaster to accommodate the work of other trades.

F. Perform cut-out and patching work for repair of deteriorated plaster.

G. Tolerances: Do not deviate more than plus or minus 1/8" in 10 feet (3 mm in 3 m) from a true plane in a finished plaster surface, as measured by a 10-foot (3-m) straightedge placed at any location on a surface.

H. Sequence plaster application with installation and protection of other work so that neither will be damaged by installation of other.

I. Plaster flush with metal frames and other built-in metal items or accessories that act as a plaster ground, unless otherwise indicated. Where plaster is not terminated at a metal frame by casing beads, cut base coat free from metal frame before plaster sets and groove finished coat at junctures with metal.

J. Apply thicknesses and number of coats of plaster as indicated or as required by referenced standards.

K. Use of partially set, frozen, caked, lumpy, or re-tempered plaster materials is not allowed.

3.06 PLASTER APPLICATION

A. Plaster Application Standard: Apply plaster materials, composition, mixes and finishes indicated to comply with ASTM C 842.

B. Number of Coats: Apply plaster of composition indicated to comply with the following requirements:
   1. Three Coats over the following plaster bases:
      a. Existing sound wood lath.
      b. Metal lath.

C. Finish Coats: Apply finish coats to comply with the following requirements:
   1. Troweled, unless otherwise indicated.
   2. Floated, were indicated; match Architect's sample for texture.

3.07 CUTTING, PATCHING AND SKIM-COATING

A. Repair existing plaster walls and ceiling surfaces as necessary to match adjacent undamaged plaster elements. Cut and remove existing plaster, latch and support system, as necessary, to make repair. Prepare existing edges as required to blend new plaster to existing. Repairs shall be seamless and free of cracks.

B. Cut, patch, replace and repair plaster as necessary to accommodate other work and to restore cracks, dents, and imperfections. Repair or replace work to eliminated blisters, buckles, excessive crazing and check cracking, dry outs, efflorescence, sweats outs and similar defects and where bond to substrate has failed.

C. Skim-coat entire effected wall after cutting and patching. Where skim coating the entire wall is impractical, feather skim-coat to existing surface, ten fee each side of patch. Prior to skim-coating, scarify surface and apply a thin fiberglass mesh over a binder adhesive, then apply a thin coating of plaster.

D. Whenever new plaster is to be blended with existing plaster, step existing plaster back from one coat to the next so new plaster coats successively lap over existing coats.

E. Sand smooth-troweled finished lightly to remove trowel marks.

F. Leave plaster ready for painting.

3.08 REPAIRING CRACKS, GOUGES AND CHIPS

A. Hairline cracks:

1. Fill in wall and ceiling plaster with a patching material as long as the underlying plaster is in good condition.

B. Structural cracks:
   1. Remove base coat on either side of crack. Rout out crack 1/2" wide x 3/8" deep.
   2. Rout out crack 1/2" wide x 3/8" deep.
   3. Do not straighten or deviate from crack more than 1/8".
   4. Clean and prime as required.
   5. Inject epoxy gout appropriate for plaster wall too stabilize crack.
   6. Install surface applied fiberglass sheet per manufacturer's recommendations.
   7. Re-coat with 3-coat plaster system and feather in to match existing adjacent surfaces.

C. Surface cracking, gouges or chips:
   1. Where entire wall surface is cracked or damaged, utilize a wall restoration system (Nu-Wal Restoration System or equivalent).
   2. Prepare surfaces in accordance with manufacturer's recommendations.
   3. Sand ridges of cracks, gouges and chips to an even plane.
   4. Fill cracks, gouges and chips greater than 1/16".
   5. Repair large holes with patching plaster or drywall compound per Section 3.10 below.
   6. Prime all bare plaster and patched areas.
   7. Seal chalky surfaces with penetrating surface conditioner in accordance with manufacturer's instructions.
   8. Apply plaster restoration system n accordance with manufacturer's instructions.
   9. Ensure completed application forms a seamless, monolithic surface with uniform textures and covering all cracks and holes.

3.09 REPLACING DELAMINATED AREAS OF THE FINISH COAT

A. If finish coat of plaster comes loose from the base coat, apply a liquid plaster-bonding agent onto the areas of base-coat plaster to be re-plastered with a new finish coat.

3.10 PATCHING HOLES IN WALLS

A. Small Holes
   1. For small holes (less than 4 inches in diameter) that involve loss of the brown and finish coats, repair plaster as follows:
      a. First, trowel a layer of basecoat plaster in place and scrape back below the level of the existing plaster.
      b. When the base coat has set but not dried, apply a second layer of plaster to create a smooth, level surface.

B. Large Holes
   1. For larger holes (greater than 4 inches in diameter) where all three coats of plaster are damaged or missing down to the wood lath, repair plaster as follows:
      a. First, clean out all the old plaster and re-nail any loose lath.
      b. Spray a water mist on the old lath to keep it from twisting when the new, wet plaster is applied or apply a bonding agent.
      c. To provide more reliable keying and to strengthen the patch, attach expanded metal lath (diamond mesh) to the wood lath with tie wires or nailed over the wood lath with lath nails.
      d. Apply new plaster in three layers over the metal lath, lapping each new layer of plaster over the old plaster so that old and new are evenly joined.
      e. Contour the patch to conform to the irregularities of the existing work so that it does not stand out from the rest of the wall.

3.11 PATCHING HOLES IN CEILINGS

A. Examine the plaster surrounding the area of loose plaster to determine cause of deterioration. Bring any moisture or structural related issues to the Architect’s attention before proceeding further.

1. If the areas surrounding the loose plaster area are in reasonably good condition, re-attach the loose plaster to the lath using flat-head wood screws and plaster washers.
2. Patch hole in the ceiling plaster by fastening metal lath over the wood lath; then fill hole with successive layers of plaster, as described in Section 3.09 above.

3.12 ESTABLISHING NEW PLASTER KEYS:

A. If the back of the ceiling lath is accessible (usually from the attic or after removing floor boards), small areas of bowed-out plaster can be pushed back against the lath as follows:
   1. Verify the original lath is secure.
   2. Secure loose plaster with a padded piece of plywood and braces.
   3. After dampening the old lath and coating the damaged area with a bonding agent, apply a fairly liquid plaster mix (with a glue size retardant added) to the backs of the lath, and work into the voids between the faces of the lath and the back of the plaster.
   4. While first layer is still damp, lay plaster-soaked strips of jute across the backs of the lath and press firmly into the first layer as reinforcement.

3.13 FIELD QUALITY CONTROL

A. Above Ceiling Observation: Before Contractor installs gypsum plaster and lath on ceiling support framing, Architect will conduct an above-ceiling observation and report deficiencies in the Work observed. Do no proceed with the installation of plaster and lath to ceiling support framing until deficiencies have been corrected.
   1. Notify Architect seven days in advance of date and time when Project will be ready for above-ceiling observation.
   2. Before notifying Architect, complete the following in areas to receive gypsum lath and plaster ceilings:
      a. Installation of 80 percent of light fixtures, powered for operation.
      b. Installation, insulation and pressure testing of water piping systems.
      c. Installation of HVAC air-duct systems, devices and components.
      d. Installation of ceiling support framing.

3.14 CLEANING AND PROTECTING

A. Remove temporary protection and enclosure of other work. Promptly remove plaster from door frames, window, and other surfaces not to be plastered. Repair floors, walls and other surfaces damaged during plastering. When plastering is completed, remove unused materials, containers and equipment and clean floors of plaster debris.

B. Provide final protection and maintain conditions in a manner acceptable to manufacturer and Installer that ensure plaster work is without damage or deterioration until project completion.

END OF SECTION 092000

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Metal ceiling and soffit framing.

B. Framing accessories.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

B. Section 092613 Gypsum Veneer Plastering.

1.03 REFERENCE STANDARDS

A. ASTM C645 - Standard Specification for Nonstructural Steel Framing Members; 2013.

B. ASTM C754 - Standard Specification for Installation of Steel Framing Members to Receive Screw-Attached Gypsum Panel Products; 2011.

C. ASTM C1002 - Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs; 2007 (Reapproved 2013).

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Shop Drawings:
   1. Indicate prefabricated work, component details, stud layout, framed openings, anchorage to structure, acoustic details, type and location of fasteners, accessories, and items of other related work.
   2. Describe method for securing studs to tracks, splicing, and for blocking and reinforcement of framing connections.

C. Product Data: Provide data describing framing member materials and finish, product criteria, load charts, and limitations.

D. Manufacturer's Installation Instructions: Indicate special procedures and perimeter conditions requiring special attention.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum five years documented experience and approved by manufacturer.

1.06 MOCK-UP

A. Provide mock-up of ceiling framing including gypsum veneer plastering and finish specified in other sections. Coordinate with installation of associated work specified in other sections.
   1. Mock-up Size and Location: As indicated on the drawings.
   2. Mock-up may remain as part of the Work.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Metal Framing, Connectors, and Accessories:

2.02 FRAMING MATERIALS

A. Non-Loadbearing Framing System Components: ASTM C645; galvanized sheet steel, of size and properties necessary to comply with ASTM C754 for the spacing indicated, with maximum deflection of wall framing of L/240 at 5 psf (240 Pa).
   1. Ceiling Channels: C shaped.
   2. Steel Stud Framing Connectors:
   3. Products:

a. Simpson Strong Tie, Bridging Connectors; DBC Bridging Connector: www.strongtie.com or approved equal.

B. Ceiling Hangers: Type and size as specified in ASTM C754 for spacing required.

C. Furring and Bracing Members: Of same material as studs; thickness to suit purpose; complying with applicable requirements of ASTM C754.

D. Fasteners: ASTM C1002 self-piercing tapping screws.

E. Anchorage Devices: Powder actuated.

F. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that rough-in utilities are in proper location.

3.02 CEILING FRAMING

A. Comply with requirements of ASTM C754.

B. Install framing after work above ceiling or soffit is complete. Coordinate the location of hangers with other work.

C. Install framing independent of walls, columns, and above-ceiling work.

D. Securely anchor hangers to structural members or embed in structural slab. Space hangers as required to limit deflection to criteria indicated.

E. Space main carrying channels at maximum 72 inch (1 800 mm) on center, and not more than 6 inches (150 mm) from wall surfaces. Lap splice securely.

F. Securely fix carrying channels to hangers to prevent turning or twisting and to transmit full load to hangers.

G. Place secondary framing channels perpendicular to carrying channels, not more than 2 inches (50 mm) from perimeter walls, and rigidly secure. Lap splices securely.

H. Laterally brace suspension system.

3.03 TOLERANCES

A. Maximum Variation From True Position: 1/8 inch in 10 feet (3 mm in 3 m).

B. Maximum Variation From Plumb: 1/8 inch in 10 feet (3 mm in 3 m).

END OF SECTION 092216

SECTION 092613 - GYPSUM VENEER PLASTERING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Gypsum veneer plaster on gypsum veneer base.

B. Gypsum veneer base and accessories.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing acoustical gaps in construction other than gypsum board or plaster work.

B. Section 092216 - Non-Structural Metal Framing: Metal stud framing and furring for plaster.

1.03 REFERENCE STANDARDS

A. ASTM C587 - Standard Specification for Gypsum Veneer Plaster; 2004 (Reapproved 2009).

B. ASTM C631 - Standard Specification for Bonding Compounds for Interior Gypsum Plastering; 2009 (Reapproved 2014).

C. ASTM C843 - Standard Specification for Application of Gypsum Veneer Plaster; 1999 (Reapproved 2012).

D. ASTM C844 - Standard Specification for Application of Gypsum Base to Receive Gypsum Veneer Plaster; 2004 (Reapproved 2010).

E. ASTM C1047 - Standard Specification for Accessories For Gypsum Wallboard and Gypsum Veneer Base; 2014a.

F. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

G. GA-216 - Application and Finishing of Gypsum Board; 2013.

H. GA-600 - Fire Resistance Design Manual; Gypsum Association; 2012.

1.04 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittals procedures.

B. Product Data: Provide data on veneer plaster products and accessories.

C. Samples: Submit two sample panels, 12x12 inch (____x____ mm) in size illustrating veneer finish and texture.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Mockups: Apply mockups of at least 100 sq. ft. (9 sq. m) in surface area to demonstrate aesthetic effects and qualities of materials and execution.
   1. Apply mockups for the following applications:
      a. Ceilings: smooth finish
   2. Simulate finished lighting conditions for review of mockups.
   3. Approved mockups may become part of the completed Work if undistured at time of Substantial Completion.

1.05 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.

B. Copies of Documents at Site: Maintain at the project site a copy of each referenced document that prescribes execution requirements.

1.06 FIELD CONDITIONS

A. Do not apply veneer plaster when substrate or ambient air temperature is less than 50 degrees F (10 degrees C) nor more than 80 degrees F (27 degrees C); for 24 hours prior to, during operations and after, until building heating system can maintain the above minimum temperature.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Gypsum Veneer Plaster:
   1. Georgia-Pacific Gypsum LLC; Gold Bond Kal-Kote Smooth over Kal-Kote Basecoat: www.gp.com/gypsum.
   2. USG; Red Top Finish Plaster over Diamond Veneer Base Coat.: www.usg.com.
   3. Substitutions: See Section 016000 - Product Requirements.

2.02 MATERIALS

A. Gypsum Veneer Plaster: ASTM C587, mixed in accordance with manufacturer's instructions.

B. Fire-Rated Gypsum Veneer Base: ASTM C1396/C1396M, fire rated Type X; sizes to minimize joints in place; ends square cut.
   1. Thickness: 5/8 inch (16 mm).
   2. Edges: Square.

C. Gypsum Veneer Base Trim Accessories: Zinc-coated steel, complying with ASTM C1047.

D. Gypsum Board Accessories: Complying with ASTM C1047, GA-216, and GA-600.

E. Joint Reinforcing for Gypsum Veneer Base: As specified in ASTM C587.

F. Fasteners: As specified in ASTM C844.

G. Bond Coat: ASTM C631 bonding compound.

H. Acoustic Sealant: Acrylic emulsion latex or water-based elastomeric sealant; do not use solvent-based non-curing butyl sealant.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that substrates are ready to receive work.

B. Verify gypsum plaster base is flat, smooth and surface is ready to receive work. Verify joint and surface perimeter accessories are in place.

3.02 PREPARATION

A. Clean surfaces of dust or loose matter.

B. Remove projections greater than 1/8 inch (3 mm) and fill depressions greater than 1/4 inch (6 mm) with Portland cement mortar.

C. Apply color tinted bond coat to prepare masonry surfaces within 24 hours of veneer plaster application. Apply in accordance with manufacturer's instructions.

3.03 INSTALLATION - GYPSUM PLASTER BASE

A. Install gypsum base in accordance with ASTM C844.

B. Use drywall screws to fasten gypsum base to framing substrate.

C. Single Layer Base:
   1. Install gypsum board horizontal, with ends and edges occurring over firm bearing.

D. Install accessories.

E. Tape, fill, and sand filled joints, edges, corners, openings, and trim to produce surface ready to receive veneer finish.

F. Feather coats onto adjoining surfaces so that joint camber is maximum 1/32 inch (0.8 mm).

G. Install acoustical sealant at gypsum board perimeter at:
   1. Metal Framing: One bead.
   2. Perimeter interruptions.
   3. Seal penetrations of plaster by conduit, pipe, ducts, and rough-in boxes using acoustic sealant, except where firestopping is provided.

3.04 INSTALLATION - VENEER PLASTER

A. Install gypsum veneer plaster in accordance with ASTM C843 and manufacturer's instructions.

B. At _____: Apply single coat to a thickness of 1/16 inch (1.6 mm).

C. Finish surface to flat, smooth, hard trowel finish.

3.05 TOLERANCES

A. Maximum Variation From Specified Thickness: Plus or minus 1/64 inch (0.4 mm).

3.06 PROTECTION

A. Do not permit traffic near unprotected finished surfaces.

END OF SECTION 092613

SECTION 093100 - MOSAIC TILE RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Replacing individual mosaic floor tiles that are cracked, damaged or are missing.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between tile work and adjacent construction.

1.03 REFERENCE STANDARDS

A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile - Version; 2013.1.

B. ANSI A108.5 - American National Standard Specifications for Installation of Ceramic Tile with Dry-Set Portland Cement Mortar or Latex-Portland Cement Mortar; 2013.1.

C. ANSI A108.10 - American National Standard Specifications for Installation of Grout in Tilework; 2013.1.

D. ANSI A118.1 - American National Standard Specifications for Dry-Set Cement Mortar; 2013.1.

E. ANSI A137.1 - American National Standard Specifications for Ceramic Tile - Version; 2013.1.

F. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation - Version; 2013.1.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide manufacturers' data sheets on tile, mortar, grout, and accessories. include instructions for using grouts and adhesives.

C. Shop Drawings: Indicate tile layout, patterns, color arrangement, perimeter conditions, junctions with dissimilar materials, control and expansion joints, ceramic accessories, and setting details.

D. Samples: Mount tile and apply grout on two plywood panels, minimum 18 x 18 inches (450 x 450 mm) in size illustrating pattern, color variations, and grout joint size variations.

E. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

1.06 QUALITY ASSURANCE

A. The general objective for replacement of mosaic floor tiles is to match the existing floor color, pattern and the existing adjacent floor tiles, and all other respects to that the new floor tiles are not visible in the overall view of the floors.

B. The general objectives for cleaning the ceramic floor tiles are to remove dirt and grime from the surface without damaging the underlying material, and to give all the mosaics a clean uniform appearance.

C. Maintain one copy of and ANSI A108/A118/A136.1 and TCNA (HB) on site.

D. Manufacturer Qualifications: Company specializing in manufacturing the types of products specified in this section.

E. Installer Qualifications: Company specializing in performing tile installation, with minimum of 5 years of documented experience, with minimum 5 years of documented experience. The Contractor shall submit to the Architect references of previous work justifying the firm's experience. The Architect reserves the right to approve or disapprove the use of the Contractor contingent on the firm's experience.

1.07 MOCK-UP

A. See Section 014000 - Quality Requirements, for general requirements for mock-up.

B. Construct a 24-inch x 24-inch (609.6 mm x 609.6 mm) tile mock-up in location indicated by Architect, incorporating all repairs specified for the location.
   1. Approved mock-up may remain as part of the Work.

PART 2 PRODUCTS

2.01 TILE

A. Manufacturers: All products by the same manufacturer.
   1. American Olean Corporation: www.americanolean.com.
   2. Dal-Tile Corporation: www.daltile.com.

B. Ceramic Mosaic Tile: ANSI A137.1, and as follows:
   1. Moisture Absorption: 0 to 0.5 percent.
   2. Size and Shape: 1 inch square (25 mm square) nipped and custom cut to match existing.
   3. Edges: Square (match existing).
   4. Surface Finish: Unglazed.
   5. Color(s): To be selected by Architect from manufacturer's standard range as necessary to replace damaged or missing tile within mosaic.

2.02 SETTING MATERIALS

A. Manufacturers
   1. Bostik Inc.: www.bostik-us.com <http://www.bostik-us.com>.
   2. Custom Building Products: www.custombuildingproducts.com.
   3. LATICRETE International, Inc.: www.laticrete.com.

B. Latex-Portland Cement Mortar Bond Coat: ANSI A118.4, ANSI A118.15.
   1. Products:
      a. LATICRETE International, Inc; LATICRETE 254 Platinum or approved equal.

C. Epoxy Adhesive and Mortar Bond Coat: ANSI A118.3.
   1. Products:
      a. LATICRETE International, Inc; LATICRETE LATAPOXY 300 Adhesive or approved equal.

D. Mortar Bed Materials: Prepackaged mix of Portland cement, sand, latex additive, and water.
   1. Products:
      a. LATICRETE International, Inc; LATICRETE 3701 Fortified Mortar Bed or approved equal.

2.03 GROUTS

A. Polymer Modified Grout: ANSI A118.7 polymer modified cement grout.
   1. Use sanded grout for joints 1/8 inch wide and larger; use unsanded grout for joints less than 1/8 inch wide.

B. Color(s): As selected by Architect from manufacturer's full range to match existing original grout color.

C. Products:
   1. LATICRETE International, Inc; LATICRETE PERMACOLOR Select Grout or approved equal.

2.04 ACCESSORY MATERIALS

A. Tile Cleaner: A neutral cleaner capable of removing soil and residue without harming tile and grout surfaces, specifically approved for materials and installations indicated by tile and grout manufacturers.

B. Clean, potable water.

C. Tile Sealant: Nonsag, non-staining silicone. Refer to Section 079000 Sealants.
   1. Color: As selected by Architect from manufacturer’s full range to match color to grout in tile adjoining sealed joints.

D. Grout Sealer: Liquid-applied, moisture and stain protection for existing or new cement grout as required by grout manufacturer.

E. Tile Sealer: Stain protection for natural stone.
   1. Products:
      a. STONETECH, a division of LATICRETE international, Inc.; STONETECH Heavy Duty Stone Sealer or approved equal.

PART 3 EXECUTION

3.01 PREPARATION

A. Protect surrounding work from damage.

B. Clean all tile with a non-abrasive cleaner.

C. Remove cleaner residue by wiping the tile surface with a damp sponge and clean, potable water.

D. Select replacement tiles to match cleaned surrounding tiles.

3.02 INSTALLATION

A. Carefully remove damaged tiles by hand using a chisel and rubber mallet. Take care not to damage surrounding material or substrate.

B. Prepare the substrate following adhesive manufacturer's instructions

C. Set new tile even and flush with existing surrounding tile. Lay tile joints in grid pattern to match the original ceramic tile pattern. Provide uniform joint widths to match existing widths. Follow tile manufacturer’s instructions. Allow to set for length of time as recommended by manufacturer.

D. Remove any excess adhesive from surrounding tiles using a clean, soft cloth.

E. Once the tile has set for the recommended length of time, apply grout to match existing dimensions, color and texture.

F. Remove any residual grout from the surface using a clean, soft cloth.

END OF SECTION 093100

SECTION 096340 - STONE FLOORING RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cleaning of existing marble.

B. Marble repairs, including cracks, chips, spalls, and Dutchmen.

C. Preparation and installation of new marble wall cap.

D. Re-pointing of marble.

E. Sealing of marble

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between stone flooring work and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

A. ANSI A108/A118/A136.1 - American National Standard Specifications for the Installation of Ceramic Tile - Version; 2013.1.

B. ANSI A118.1 - American National Standard Specifications for Dry-Set Portland Cement Mortar; 2013.1.

C. ASTM C503/C503M - Standard Specification for Marble Dimension Stone; 2010.

D. TCNA (HB) - Handbook for Ceramic, Glass, and Stone Tile Installation - Version; 2013.1.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Submit manufacturer's product literature and application instructions for all products used in marble repair and cleaning before the work begins.

C. Shop Drawings:
   1. For existing marble: Provide diagram of anticipated repairs.
   2. For new marble: Show general layout, jointing, anchoring, thickness of stock and such other dimensions as may be applicable. The drawings shall show all jointing and anchoring details, and the dimensions and setting number of each piece of marble. They shall be corrected as necessary and resubmitted until approval is complete and final. No fabrication affected by the shop drawings shall be started until such drawings have been fully “approved” and marked as such. The Marble Contractor shall obtain and verify measurements at the building, as required for fabrication. The General Contractor shall be responsible for all reasonable assistance to the Marble Contractor, including assistance in establishment of levels, bench marks, and the like.

D. Samples:
   1. For new replacement marble:
      a. Submit fabricator’s quality control procedures, including quarrying, sorting, blending, fabrication, and shipping.
      b. Submit at least two sets of samples of the various kinds of marble specified. Sample size shall be 1’-0” x 1’-0” and shall represent approximately the shade, markings, and characteristics of the variety of marble named and finishes required. Where necessary to show variations in color and markings, larger samples or range sets of samples should be submitted. If marble is to be matched, a minimum of two sets each containing four matched samples showing proposed veining and range of color in each set must be supplied. Samples designating finished face shall be clearly labeled on the back with the name of the marble, the group classification for soundness and the use for which the marble is intended. One set of approved

samples shall be retained by the Architect, and another set returned to the marble supplier for their guidance.

c. One set of approved samples shall be retained by the Architect, and another set returned to the marble supplier for their guidance.

d. Submit three copies of marble fabricator's literature and test results certifying that the marble to be supplied for use on the building has the required properties. The test results submitted shall be for marble material from all quarries to be used and for the finishes used on this project.

E. Samples: Submit sample of colored grout.

F. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods and sealer.

1.06 QUALITY ASSURANCE

A. All marble shall be obtained from suppliers/quarries having adequate capacity and facilities to meet the specified requirements, and by a firm equipped to process the material promptly on order and in strict accord with specifications. The Architect reserves the right to approve the material supplier for marble before this portion of the work is awarded.

B. Contractor Qualifications: Contractor's workmen performing this work must have at least five years proven experience in marble repair and restoration and shall have successfully completed three projects similar in scope to the work of this project within the last ten years.

C. All Contractor's workers performing marble work shall be trained in all phases of marble repairs including selecting the appropriate repair method. Personnel performing marble repair work shall be same personnel who perform approved repair samples. Contractor shall keep a current listing of approved personnel for marble repairs on site.

D. All marble materials, fabrication, finish, and installation shall comply with the Marble Institute of America Dimension Stone Design Manual, Version 7.2 or latest edition. All marble floor installation shall also comply with the Tile Council of North America guidelines.

E. Field Quality Control: Work in place shall be subject to inspection testing. Work found to be unacceptable shall be replaced with new, acceptable work.

1. Qualification Requirements: Review of the qualifications of the workmen for this section is a requirement of this project. In order to be qualified for this work, the Contractor shall submit for review a list of projects showing the experience of each team member as outlined in the Quality Assurance section of this specification.

a. The Contractor shall, for each worker, identify each project by name and location, provide an outline description of the scope of work, dollar value of the contract, date of completion, a reference contract, and a description of the worker's responsibility on the project.

b. If, in the opinion of the Architect and the Owner, the worker does not meet the requirements for this section, the Contractor shall be required to submit alternate workmen providing a full set of quality assurance submittals for that worker for review.

1.07 MOCK-UP

A. Provide a sample of each repair type (cracks, chips and spalls, Dutchmen, repointing, and cleaning) using the materials and methods specified herein, and the tools and equipment intended to be used by the workmen performing the work.

B. Sample locations shall be selected by the Architect/Engineer in consultation with the Contractor.

C. Additional samples shall be made until an acceptable result is achieved.

D. Before full scale work commences, each sample shall be reviewed by the Architect/Engineer and Owner.

E. The accepted samples shall be the standard for the work. All samples shall be retained throughout the duration of the project and may be incorporated into the work upon completion.

F. The Contractor shall ensure that the samples are performed by the same Contractor's personnel who are to perform the work of the overall project.

1.08 FIELD CONDITIONS

A. All equipment, material and appliances required for the completion of the work, shall be so located, laid out, and operated as to provide for maximum efficiency, and to prevent damage to all new and existing construction.

B. Contractor shall assume full responsibility for protection and safekeeping of products stored on premises, and for their proper use.

C. Where conditions are uncovered that are not anticipated by the Drawings and/or Specifications, the Contractor shall notify the Architect/Engineer immediately, before any repairs are initiated.

D. Pointing shall be completed after or simultaneously with the execution of stone repairs.

E. Coordinate work of this project with other work in progress on the building.

F. Maintain 50 degrees F (10 degrees C) during installation of flooring materials.

G. The Contractor shall cover all partially completed work at the end of each working day or when work is not in progress.

H. The Contractor shall exercise caution in performing the work so as not to damage adjacent building elements. It shall be the Contractor's responsibility to protect the adjacent marble, terrazzo, wood, and plaster from damage. Any damaged materials shall be repaired to the satisfaction of the Architect/Engineer without additional cost to the Owner.

1.09 TOOLS AND EQUIPMENT

A. Tools that permanently deposit metallic fragments or filings on the marble surface are not acceptable.

B. Tools and equipment shall be as approved by marble fabricators and as specified by referenced standards and as specified within this section. No tools shall be used which will cause damage or undue ware to the marble work.

PART 2 PRODUCTS

2.01 STONE

A. New Marble: Contractor shall install new marble, as indicated on the drawings. New marble shall conform to the range of approved samples and be in accordance with the characteristics and working qualities set forth under their respective soundness Group Classifications A, B, C, or D, as defined by the Marble Institute of America. Care shall be taken in selection to produce as harmonious effect as possible. Patching and waxing, where permitted under the Marble Institute of America Group Classifications, shall be carefully done to conform to the Marble's general character and finish. Texture and finish shall be within the range of samples approved by the Architect.

1. ASTM C503/C503M, Classification I - Calcite; free of defects detrimental to appearance or durability:
    a. Unit Size: As indicated on the Drawings.
    b. Thickness: Match existing.
    c. Color: Match existing.
    d. Surface Finish: Honed

B. Marble to be repaired:

1. Where noted on drawings, repair damaged marble items. All marble shall be stripped of wax, where required, prior to any repairs being done.
    a. Prior to stripping wax, provide certification from stripper manufacturer indicating that the stripper will not harm the marble surface or chemical makeup. Stripper shall be non-reactive with other components.

2.02 DUTCHMAN

A. All stone for dutchman and replacement units shall be cut accurately to shape and dimensions and full to the square. All exposed faces shall be dressed true. Size shall be such that final joints have a uniform thickness to match size of surrounding joints. Refer to new marble schedule for Dutchman stone.

B. The fabricator and the Contractor shall determine all field dimensions necessary for fabrication of dutchman and replacement units.

C. Marble dutchman units shall be carefully selected to match adjacent marble color, grain, and veining. dutchman shall be inspected by Architect/Engineer, prior to installation.

2.03 ANCHORING DEVICES

A. Dowels, Cramps and Pins: Brass, ¼ inch x 2 inches or size as required.

B. Exposed Anchoring Devices: Not allowed.

C. Other Anchoring Devices: Brass, copper, or stainless steel. Wire anchors shall be #8 copper or stainless steel.

D. Shims: Plastic.

E. Provisions for anchorage of marble shall be clearly indicated on the shop drawings, and shall be in accordance with the drawings and specifications and Marble Institute of America (MIA).

F. Use drill, bits, and setting tools recommended by the Marble Institute of America (MIA).

2.04 MORTAR, GROUT, AND ADHESIVE MATERIALS

A. Portland Cement: ASTM C150. Use White Portland Cement at white or light colored marble.

B. Portland Cement Shrinkage Reducing Accelerator: Non-staining admixture that will not corrode anchors or dowels.

C. Hydrated Lime: ASTM C207, Type S.

D. Molding Plaster (Plaster of Paris): ASTM C59.

E. Sand: Clean, sharp and free of soluble salts and organic materials, screened as required for desired results.

F. Water: Clean, free from deleterious amounts of acids alkalis, organic materials and other impurities, and potable.

G. Cushions: Plastic.

H. Marble Dust: Type recommended by the industry for use intended and matching existing marble, as approved by Architect.

I. Epoxy Mortar: Epoxy resin and epoxy hardener two-part, 100% solids mixture.

J. Non-staining Adhesive: ASTM C91. Adhesive shall be of a type that will not stain the marble, is not affected by changes in temperature or moisture, and that adheres with strong suction to all clean surfaces.

2.05 MIXES

A. Mortar Setting Bed for Marble: MIA 101.10.2 Dry-Set Mortar: One part (non-staining) Portland cement to one half part lime to four and one half parts of sand. Add enough water to make mortars plastic.

B. Grout: MIA 101.6.2; Sand-Portland cement mixture, mixed on the job in following proportions of Portland cement to fine graded clean sand, in accordance with ASTM C144: 1:1 for joints up to 1/8 inch; 1:2 for joints 1/8 – ½ inch; 1:3 for joints over ½ inch wide. Up to 1/5 part lime acceptable.

2.06 ACCESSORY MATERIALS

A. Marble Cleaners

1. General: Based on qualification requirement, the marble contractor is assumed to be qualified to assist in evaluating cleaners and methods of cleaning. Option will be accepted if they can be shown to be effective without harming the marble. If the listed systems react badly with specific installations the contractor shall stop using the system and suggest alternative solutions.
2. Wall Cap:

a. Marbamist cleaner as manufactured by Stone Care International, Inc. Phone (800) 839-1654. Substitute only as approved, in writing, by Architect.
b. Palmolive bar soap and potable water. No other soap may be used.

3. Wax stripper for floors:
   a. Safstrip as manufactured by Prosoco, Inc. Substitute only as approved, in writing, by Architect.
4. Cleaning Carpet glue from floors:
   a. Unbelievable Goo-D-Solv-R Pro as manufactured by Core Products Co., Inc. Phone 1 (800) 825-2673. Substitute only as approved, in writing, by Architect.
5. General Floor Cleaner/Finisher:
   a. Marbelous, as manufactured by Masury/Columbia, Melrose Park, Illinois. Use with floor cleaning machine, in accordance with manufacturer's recommendations.
6. Poultice:
   a. Sure Klean Marble Poultice as manufactured by Prosoco
7. Clean, soft cotton cloths.
8. Natural sponges.
9. Water: potable.
10. Materials containing acid are not allowed.
11. White absorbent material for poultices:
    a. Molding plaster.
    b. Untreated white flour.
    c. White tissue or paper towels.
    d. Baking powder or baking soda.
    e. Diatomaceous earth.
12. Additional materials as indicated in Part 3.

B. Marble Sealer
   1. Stone Tile and Masonry Protector as manufactured by Prosoco. Substitute only as approved in writing by Architect.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine all substrates, support, and conditions under which the work is to be performed. Notify the Architect/Engineer of any conditions detrimental to the work. Do not proceed with work until unsatisfactory conditions are corrected.

B. Removal of marble units:
   1. Use extreme care in removing marble units.
   2. Care shall be taken to avoid damaging units. Removal of marble pieces may require disassembly or removal of adjacent components such as wood trim, wainscot, additional marble panels, flat plaster, or ornamental plaster. These components shall be repaired or replaced.
   3. Carefully protect and store units after removal.
   4. Dutchman and new units shall be installed plumb, square, and true to line.
   5. Contractor shall do all cutting and fitting of marble to fit required patterns and profiles, or to match new work to existing.
   6. Do all cutting and drilling for hardware and anchorage in a true and neat manner to ensure acceptable, correct installation and to accommodate all items by other trades to be set into, or pass through, marble.
   7. All edges shall be cut true and square or as existing conditions require; plane surfaces shall be true and flat, without elevations or depressions. Ease edges, if necessary, to match original or similar work.
   8. All newly cut, exposed marble edges shall be finely honed and/or polished to match existing marble.

9. Where required, provide pear-shaped cutouts in substrate to receive wire anchors as detailed. If existing cutouts in existing pieces are in proper locations, they may be cleaned out and re-used.

3.02 PREPARATION

A. Vacuum clean substrate surfaces; damp clean stone.

B. Seal substrate surface cracks with filler.

C. Clean stone prior to installation, with edges and surfaces free of dirt or foreign material.

D. Do not use wire brushes or implements that mark or damage exposed surfaces.

3.03 INSTALLATION

A. General:
   1. Follow cleaning procedures before, during and after installation of marble.
   2. When ready for setting, units shall be brushed free of dust or other foreign matter and shall be thoroughly washed and wetted with clean water immediately before being laid.
   3. Each unit shall be placed accurately, true to line and level, in full bed of mortar with joints solidly filled.
   4. Wet substrate before applying mortar.
   5. Set marble square and true with edges of face joints plumb.
   6. Grout joints per applicable standards.
   7. After setting and grouting, immediately remove all surplus material from face of marble.
   8. Joints shall match existing. Grout shall be carefully colored to match existing.

B. Anchors and Dowels:
   1. A minimum of two (2) anchors are required on wall cap.
   2. Where shown or required, anchor adjoining pieces with pins or dowels or wires. Set with equal penetration into each connecting piece.
   3. For re-installations, utilize all existing anchor locations.

C. Marble Floor Pieces:
   1. It is the General Contractor's responsibility to remove existing wood flooring, floor finishes, and substrates as required for installation of new marble flooring. Existing mortar beds or concrete over structural slab will need to be removed.
   2. Clean all subfloor surfaces to remove dirt, dust, debris, and loose particles immediately prior to setting marble floor. Curing compounds of any kind shall not be used on the slab on which floor marble is to be directly set. If a curing compound is present, it is the General Contractor's responsibility to remove it by scarifying the slab. Before being set, all marble shall be clean and free of foreign matter of any kind.
   3. The cement bed to receive the marble tile shall consist of 1 part non-staining Portland Cement to one half part lime to four and one half parts of clean, sharp sand mixed quite dry for tamping. White Portland Cement shall be used for light colored marbles.
   4. The marble shall be tamped with a suitable mallet until firmly bedded to the proper level of the floor.
   5. The marble shall then be removed and the back parged with wet cement or the bed sprinkled with water and cement. In the latter procedure, the back of the marble shall be wet. The method of fully buttering edges of the marble as it is laid is equally approved.
   6. Joints between the marble pieces shall show an even width when laid and finished.
   7. The floor shall be roped off for 24 hours after installation and then grouted with water and Portland Cement Grout, color to match original. All traffic must be roped off from using the newly installed floor for at least 48 hours. No heavy traffic shall be permitted for two weeks.
   8. Cleaning or additional surfacing shall not be undertaken until the new floor is at least seven days old.
   9. Grind down floor with a diamond floor grinder to eliminate lippage. The maximum floor variation that will be permitted is 1/8" cumulative over a 10" lined measurement, with no more than 1/64" variation between individual tiles.

3.04 DUTCHMAN

A. At locations designated for repair, cut out immediate area of damage and adjacent unsound stone to form a rectangular opening, to a minimum depth of 1 inch.

B. Prepare stone Dutchman unit to match color and texture of adjacent stone. Set Dutchman unit in mortar. Set Dutchman such that there is no lippage with surrounding stone. Re-point surrounding joints as required. New joint around Dutchman shall match adjacent joints.

3.05 REPOINTING EXISTING MARBLE JOINT IN FLOOR

A. All cracked and loose grout shall be removed where noted on drawings.

B. Any tool or technique for removing grout, which may scratch or mark the surface of the marble, shall not be used. Any damage caused to marble by this work shall be repaired or replaced at the Owner's discretion by this Contractor, with no expense to the Owner.

C. Strike joints to be pointed with approved, bladed tool. Drag along center of joint with leverage to score joint and loosen and remove grout to a minimum depth of ¼ inch

D. Using a high-speed dremmel, ball shaped diamond tip, and steel straight edge, remove any remaining material in the joint. Place several layers of masking tape on either side of the joint to ensure that tooling will not scratch the marble surface. Blow joint clean with compressed air.

E. Mix polyurethane joint filler-using Bonstone Last Patch Gel or an approved equivalent. Mix using a 1:1:1 ratio of Part (A), Marble Dust, and Part (B). Select a tint to match existing mortar. One drop of catalyst can be used to speed hardening.

F. Push the mixture the full depth of the joint, and smooth using a razor blade.

G. After hardening, remove the excess with a razor blade.

3.06 REPAIR CRACK IN EXISTING MARBLE

A. The entire floor should be stripped of wax and cleaned, before repairs are made.

B. Where required, using a 1/4 inch to 1/2 inch cold steel chisel, and wood mallet, remove the current patch material.

C. With assorted diamond tips and electric dremmel, clean the marble surface inside the crack, removing any additional adhesive, wax build-up and soil. Blow crack clean with compressed air. The interior of the marble must be clean and free of any dirt or particles.

D. Inject dispersed hydrated lime mortar into cracks with syringe and a # 14 needle, to ensure that the minute cracks within the joint are filled. Needle size may vary depending on width of crack.

E. Using Edison Coating's Custom 45, C# A115D-MR and RL-1, mix the patch in a 1:4 ratio of one part liquid to 4 parts powder. Fill the joint to within 1/8 inch of the surface. The desired, wet consistency is that of a creamy peanut butter. With a putty knife, or razor blade, smooth the patch to a desired shape and allow it to completely dry. A one-inch depth may take up to 12 hours to completely dehydrate. (Note: as a rule, synthetics will not adhere to a damp surface.)

F. Once completely dry, hand sand using 80 grit standard sandpaper, being careful not to sand the surface of the surrounding marble.

G. Apply Polyurethane patch in top 1/8 inch of crack. Bonstone's Last Patch Gel or an approved equivalent mixed as follows: A 1:1:1 ratio of Part (A), Part (B), and SAE #01M1 Marble Dust. Begin by mixing part (A) with marble dust, then add selected tints as desired. Next, add part (B) and recheck color. When desired color is obtained, add 1 to 2 drops of Last Patch Catalyst to speed hardening.

H. Using Putty knife, razor blade, or application stick, smooth the mixed fill to desired thickness, so that it is flush with both edges of the marble joint.

I. Once hardened, (minutes) trim excess with razor blade scraper.

3.07 REPAIR CHIPPED OR SPALLED MARBLE

A. The entire floor should be stripped of wax and cleaned before repairs are made.

B. Using assorted diamond tips and dremmel, remove accumulated dirt, grease, wax, etc., from inside the depression or hole. The marble inside must be clean and dry.

C. Using a diamond wheel, cut a dove tail into the bottom of the hole to create a ledge as applicable such that patch is anchored in hole.

D. Mix a 1:1:1 ratio of Polyurethane, Bonstone's Last Patch Gel or an approved equivalent. Mix Part (A), Part (B), and SAE # 01M1 Marble Dust. Begin by Mixing part (A) with Marble Dust, then add selected tints desired. Next, add part (B) and recheck color. When desired color is obtained, add 1 to 2 drops of Last Patch Catalyst to speed the hardening.

E. Using putty knife, razor blade, or application stick, smooth the mixed fill to desired thickness, so that it is flush with the surrounding marble.

F. Once hardened, (minutes) trim excess with razor blade scraper.

3.08 METHODS OF GENERAL MARBLE CLEANING

A. This procedure includes methods of cleaning honed and polished marble surfaces by using liquid cleaners or mild detergents. All marble, existing and new, is to be cleaned.
   1. Allowable Products: As listed herein or as suggested by Contractor and approved by Architect. Assume a product listed here as a minimum requirement.
      a. Marbamist Cleaner
         Stone Care International, Inc.
         (410) 363-8788
      b. Palmolive Soap and Water.
      c. Liquid Marble Cleaner: A water-soluble non-acidic chemical cleaner manufactured specifically for restorative type cleaning of polished and honed marble surfaces. Cleaner shall contain no abrasives, grease, lye, or other caustic or corrosive ingredients. "Sure Klean 942 Limestone and Marble Cleaner" by Prosoco, Inc. or approved equal. (800) 255-4255
   2. Equipment
      a. Buffing pads for Polished Finish: Fiber brush pads manufactured specifically for restorative type polishing of polished marble surfaces.
      b. Buffing pads for Honed Finish: Synthetic pads manufactured specifically for restorative type cleaning of honed marble surfaces.
      c. Soft natural bristle brushes (Do not use wire brush or steel wool)
      d. Circular buffing machine (for floors)
      e. Hand-held buffing machine (for surfaces other than floors)
      f. Mop and bucket (non-metallic)
      g. Sponges
      h. Clean, dry cloths

B. Preparation
   1. Protection: Prevent chemical cleaning and stain removal solutions from coming into contact with other surfaces, which could be damaged by such contact.
   2. Surface preparation:
      a. Prior to cleaning, remove cellophane tape, masking tape, etc., from surface.
         NOTE: Perform each cleaning method indicated in a manner which results in uniform coverage of all surfaces, including corners, moldings, interstices and which produces an even effect without streaking or damage to marble surfaces.

C. Cleaning Honed Marble:
   1. Machine buff with a cleaning compound (see Materials, above):
      a. Thoroughly wet honed marble surface with hot water.
      b. Sprinkle cleaning compound onto surface.
      c. Buff surfaces using a large circular buffing machine with a synthetic pad for floors or a hand-held machine for other surfaces to lift dirt build-up.
      d. Treat edges and corners of surfaces not accessible with the hand-held machine.

e. Thoroughly rinse surfaces with clean, clear water to remove loosened dirt and standing water. Change rinse water frequently and repeat rinsing as required to completely remove water and dirt residue from surface.
f. Repeat process as to achieve the desired appearance.
g. Dry surfaces with clean, dry cloths or dry mop floors after rinsing to prevent streaking.

D. Cleaning Honed Marble (Alternate Method):
1. Apply a liquid marble cleaner to the surface (see Materials, above):
a. Apply cleaner to honed marble surface using a stiff bristle brush.
b. Allow cleaner to remain on surface for period recommended by chemical cleaner manufacturer taking care not to allow cleaning material to dry.
c. Sponge rinse surface thoroughly using clean, clear water to completely remove dirt and cleaner residue. Change rinse water frequently.
d. Repeat process as necessary to achieve the desired level of cleanliness.
e. Wipe the surface with a clean, dry cloth to prevent streaking.

-OR-
1. Apply a mild detergent solution to the surface (see Materials, above):
a. Mix mild detergent with warm water to create cleaning solution –OR- mix 1 ounce of Palmolive soap, 1 quart warm distilled water and 1 ounce household ammonia.
b. Thoroughly wet the honed or polished marble surface with hot water.
c. Apply cleaning solution with a cloth, sponge or soft-fibered brush. Wash in small overlapping areas.
d. Sponge rinse surface thoroughly using clean, clear water to completely remove dirt and cleaner residue. Change rinse water frequently.
e. Wipe the surface dry with clean, soft cloths to prevent streaking.

3.09 REMOVING UNKNOWN STAINS FROM MARBLE USING A POULTICE

A. This procedure includes method on preparing a general poultice for removing unknown stains from marble. Notify Owner's Representative when all poultices will be removed. Owner's Representative will inspect results and determine if poultice needs to be repeated.

B. Safety Precautions
1. Do not save unused portions of stain-removal materials.
2. Do not store any chemicals in unmarked containers.
3. Excellent ventilation should be provided wherever any solvent is used.
4. There is danger, when using organic solvents, of spreading the stain into adjoining masonry. Areas adjacent to the stain should be adequately protected and cleaning agents to be applied to the stain should be administered starting at the bottom of the stain and working upward to avoid further staining.
5. Do not use solvents containing color agents or oil. Avoid these solvents: turpentine, leaded kerosene and gasoline.

C. For unknown stains, do the following:
NOTE: Do not use bleach on dark colored stones as this will cause the stone to lighten.
1. Thoroughly rinse the area to be treated with mineral water.
2. Mix the liquid solution to be used in a glass or ceramic bowl. 6% of solution of hydrogen peroxide.
3. Thoroughly moisten the stained surface with this liquid. Be sure to dampen well beyond the stain.
4. Mix the remaining liquid with 2 white absorbent materials such as molding plaster, untreated white flour, white tissue, paper towels, or diatomaceous earth to form a paste the consistency of oatmeal or cake icing. (Approximately one pound of paste is needed for every square foot of surface area to be treated).
5. Using a wooden or plastic spatula, apply the paste to the stained surface in layers no more than ¼ inch thick. The poultice should extend well beyond the stain to prevent forcing the stain into previously clean stone.
6. Check the coating for air pockets or voids.

7. Cover the poultice with plastic sheeting and seal with masking tape.
8. Let set for 24 hours.
9. After set period, dampen the poultice with mineral water.
10. Remove the poultice with a wooden or plastic spatula to avoid scratching the surface.
11. Again, thoroughly rinse the cleaned area with mineral water, blot with clean towels and allow the surface to dry.
12. Once the surface has dried completely, check for remaining residue and repeat the treatment if required by Owner's Representative. For bidding purposes, assume the poultice will need to be applied five times to achieve desired level of cleanliness.

D. For dingy marble, do the following: Dingy marble is marble that is not stained but does not appear satisfactory when cleaned by methods of general marble cleaning. Assume for bidding purposes that 5% all marble will need this application.
1. Thoroughly rinse the area to be treated with mineral water.
2. Add enough water to "Tide" powered laundry detergent to achieve a very thick paste the consistency of pancake batter.
   NOTE: Never add the powder to water. Always add the water to powder.
3. Spread the paste over the affected area with a wood or plastic spatula to a thickness of about ¼".
4. Cover the area with plastic sheeting and allow to soak for three days.
5. Remove the plastic and allow the poultice to dry.
6. Remove the dried poultice with a wood or plastic spatula and a stiff bristle brush.
7. Thoroughly rinse the surface with clean, clear water and allow to dry.
8. Repeat as necessary to achieve the desired level of cleanliness. For bidding purposes, assume the process will need to be performed three times to achieve clean marble.

3.10 REMOVING OIL STAINS FROM MARBLE

A. This procedure includes method on poulticing marble stained with oil containing substances. Poulticing is the most effective means of removing oil stains from marble. A solvent is used to dissolve the oil, and a medium is applied to the surface, which absorbs the oil, drawing it to the surface and into the poulticing medium as it dries. Notify Owner's Representative when all poultices will be removed. Owner's Representative will inspect results and determine if poultice needs to be repeated.

B. MATERIALS
1. Acetone (C3H60)
2. Mineral Spirits: Other chemical or common names include Benzine (not Benzene); Naptha; Petroleum spirits; Solvent naptha.

C. APPLICATION
   NOTE: Begin cleaning by using the most gentle method possible. Test clean a small area before attempting to clean large areas to determine appropriate dwell times and number of applications necessary to adequately remove the stain.
1. Rinse the area to be treated with mineral water.
2. Mix the acetone or mineral spirits in a glass or ceramic bowl. Use an amount adequate to fully cover the affected area.
3. Thoroughly moisten the stained surface with this liquid. Be sure to dampen well beyond the stain.
4. Mix the remaining liquid with a white, absorbent material such as molding plaster, untreated white flour, white tissue, paper towels, baking powder, baking soda or diatomaceous earth to form a paste the consistency of oatmeal or cake icing. (Approximately one pound of paste is needed for every square foot of surface area to be treated).
5. Using a wooden or plastic spatula, apply the paste to the stained surface in layers no more than ¼ inch thick. The poultice should extend well beyond the stain to prevent forcing the stain into previously clean stone.
6. Check the coating for air pockets or voids.

7. Cover the poultice with plastic sheeting and seal with masking tape.
8. Let set for 24 hours.
9. After set period, dampen the poultice with mineral water.
10. Remove the poultice with a wooden or plastic spatula to avoid scratching the surface.
11. Again, thoroughly rinse the cleaned area with mineral water, blot with clean towels and allow the surface to dry.
12. Once the surface has dried completely, check for remaining residue and repeat the treatment, if required by Owner's Representative. For bidding purposes, assume the poultice will need to be applied five times to achieve desired level of cleanliness.

3.11 REMOVING ORGANIC STAINS FROM MARBLE

A. This procedure includes method on poulticing marble stained by organic materials. Notify Owner's Representative when all poultices will be removed. Owner's Representative will inspect results and determine if poultice needs to be repeated.

B. PRODUCTS
   1. Hydrogen Peroxide (H202): in a 6% hair bleaching solution.

C. APPLICATION

   NOTE: Examine the marble surface carefully to determine the cause of staining before proceeding with any cleaning operation.
   1. Rinse the area to be treated with mineral water.
   2. Pour hydrogen peroxide solution in a glass or ceramic bowl.
   3. Thoroughly moisten the stained surface with this liquid. Be sure to dampen well beyond the stain.
   4. Mix the remaining liquid with 2 white, absorbent material, such as molding plaster, untreated white flour, white tissue, paper towels, powdered chalk or diatomaceous earth, to form a paste the consistency of oatmeal or cake icing. (Approximately one pound of paste is needed for every square foot of surface area to be treated).
   5. Using a wooden or plastic spatula, apply the paste to the stained surface in layers no more than ¼ inch thick. The poultice should extend well beyond the stain to prevent forcing the stain into previously clean stone.
   6. Check the coating for air pockets or voids.
   7. Cover the poultice with plastic sheeting and seal with masking tape.
   8. Let set for 24 hours.
   9. After set period, dampen the poultice with mineral water.
   10. Remove the poultice with a wooden or plastic spatula to avoid scratching the surface.
   11. Again, thoroughly rinse the cleaned area with mineral water, blot with clean towels and allow the surface to dry.
   12. Once the surface has dried completely, check for remaining residue and repeat the treatment, if required by Owner's Representative. For bidding purposes, assume the poultice will need to be applied five times to achieve desired level of cleanliness.

3.12 CLEAN-UP

A. The premises shall be kept in clean and orderly condition at all times during the progress of the work. Rubbish, barriers, dirt, debris, tools, equipment, and unused materials shall be removed from the site each day.

B. The Contractor shall remove all empty containers, debris, and the like from the site.

3.13 FINAL CLEANING

A. At completion of all marble work, clean all marble as specified. Buff all surfaces to produce appearance-matching existing.
   1. All marble surfaces shall be cleaned, including removal of all spots and stains. Clean existing marble being reused after installation.
   2. Protect adjoining surfaces from water and cleaning materials.
   3. Clean with approved methods and materials specified. Rinse well afterwards with distilled water, removing all residues.

4. Removing Spots and Stains: Use small amount of approved cleaning material to determine type and amount of material to be used, as well as length of time for cleaning material(s) to be left in place before removing. Thoroughly remove all cleaning material and residue, as recommended by manufacturer of material and best practices of trade.

B. At completion of all marble work and after completion of 'A' above, seal marble floor with two coats of the impregnating marble sealer specified above.

C. Owner to maintain marble floors using a water extraction method/machine to clean the floors with a neutral cleaner when needed in accordance with the Marble Institute of America guidelines.

END OF SECTION 096340

SECTION 096430 - WOOD FLOORING RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Repair and refinishing of wood strip or plank flooring.

1.02 REFERENCE STANDARDS

A. MFMA (SPEC) - Guide Specifications for Maple Flooring Systems; Maple Flooring Manufacturers Association; current edition.

B. NWFA (IG) - Installation Guidelines; National Wood Flooring Association; current edition located at www.nwfa.org.

C. Wood Finishing and Refinishing Revised Edition," by S.W. Gibbia, New York: Van Nostrand Reinhold Co., 1971.

1.03 DEFINITIONS

A. Refinishing is defined as all the process(es) necessary to restore woodwork.

B. Stripping is defined as the process of removing existing coatings from woodwork without damage to the wood.

C. Finishing is defined as the process of applying stain and protective coating and all related preparatory and follow-up tasks.

D. Cleaning is defined as the removal of dirt embedded in the upper finish layers and does not include the removal of any finish layer.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data for each type of product indicated.

C. Shop Drawings: Show installation details including location and layout of each type of wood flooring and accessory, including plans and details of anchorage and attachments to other units.

D. Installation Instructions: Indicate standard and special installation procedures.

E. Samples for Verification: For each type of wood flooring with stain color and finish required, approximately 12 inches (300 mm) long and of same thickness and material indicated for the Work. Include sample sets showing full range of normal color and texture variations expected.

F. Samples of the following:
   1. Existing wood strip flooring to be matched: Three 12-inch long samples of existing flooring with finish removed.
   2. New wood strip flooring: 12-inch long, unfinished samples of wood strip flooring sufficient to show entire range of material, but not less than 4 samples.

1.06 QUALITY ASSURANCE

A. Manufacturer Qualifications: Obtain flooring of each type from a single manufacturer with a minimum of five (5) years experience in furnishing flooring similar to that required for work of this section that has a record of satisfactory in-service performance to ensure match of quality, color, pattern and texture.

B. Installer Qualifications: Engage an experienced Installer who has specialized in installing types of wood flooring similar to those required for this Project and who has a minimum of Company five (5) years experience in wood refinishing and restoration, with a record of satisfactory in-service performance.
   1. Installer shall provide only skilled journeymen workers who are familiar with and experienced with methods specified and with work required for wood flooring restoration.

2. One skilled journeyman worker shall be present at all times during execution of the work and shall personally direct the work.
3. In acceptance or rejection of wood flooring restoration work, no allowance will be made for lack of skill on the part of the craftsperson.

C. Single Source Responsibility: Provide compatible finish coating, thinner, sanding sealer, and wood filler that are produced by the same manufacturer.

1.07 MOCK-UP

A. Prior to start of wood flooring restoration work, prepare quality control panels to demonstrate methods and quality of workmanship for wood flooring restoration.

B. Wood flooring restoration mock-up: 10 square feet.

C. Notify Architect five (5) days before beginning quality control panels to allow Architect to be present during preparation of panels.

D. Follow procedures outlined in this Section.

E. Obtain Architect's approval of visual qualities before proceeding with the work. Remove and reconstruction panels, as required, to obtain approval.

F. Protect approved panels from damage or deterioration until completion of all wood flooring restoration work.

G. Approved panels will represent minimum standard of acceptability for wood flooring restoration.

1.08 FIELD CONDITIONS

A. Do not install wood flooring until wet construction work is complete and ambient air at installation space has moisture content stabilized at maximum moisture content of 40 percent.

B. Store materials in area of installation for minimum period of 24 hours prior to installation.

C. Maintain minimum room temperature of 65 degrees F (18 degrees C) for a period of two days prior to delivery of materials to installation space, during installation, and after installation.

D. Regulatory Requirements: Comply with municipal and Federal regulations governing the refinishing operations and chemical waste disposal.

PART 2 PRODUCTS

2.01 WOOD STRIP FLOORING FOR REPAIR OF EXISTING FLOORING

A. Species: Match existing flooring in cut and grain configuration.

B. Surface: Smooth sanded.

C. Back Channeling: Provide manufacturer's standard channeling on back face of each strip.

D. Thickness: Match existing flooring.

E. Face Width: Match original flooring widths.

F. Lengths: Provide standard random length strips to match original flooring, complying with applicable grading rules.

G. Seasoning: Manufacturer solid wood flooring from kiln-dried lumber.

2.02 MATERIALS

A. Floor Stripper
   1. Varnish Remover
      a. Citristrip; W.M. Barr & Company; www.citristrip.com <http://www.citristrip.com>
      b. Safest Stripper; 3M Consumer Products Group; www.3m.com
      c. Approved equal
   2. Solvent Wax Remover
      a. Woodline Renovator; Bonakemi USA, Inc.; www. us.bona.com
      b. Approved equal.

B. Urethane Finishing System: Complete system of compatible components that is recommended by finish manufacturer for application indicated.

1. Type: Water based.
    a. Basis-of-Design: DuraSeal DuraClear one component non-ambering urethane finish or approved equal.
2. Stain: Penetrating and non-fading.
    a. Basis-of-Design: DuraSeal Penetrating Finish or approved equal.
    b. Color: Match Architect's sample.

C. Wood Filler: Formulated to fill and repair seams, defects, and open-grain hardwood floors; compatible with finish system components and recommended by filler and finish manufacturers for use indicated. If required to match approved samples, provide pigmented filler.
1. Basis-of-Design: DuraSeal Trowelable Wood Filler, Wood Filler, or Wood Putty, or approved equal.

D. All finishes shall be submitted to Architect for review and approval.

2.03 ACCESSORY MATERIALS

A. Flooring Nails: Type recommended by flooring manufacturer.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that subfloor is properly secured, smooth and flat to plus or minus ¼ in in 10 feet (6 mm in 3 m).

C. Verify that required floor mounted utilities are in correct location.

3.02 REMOVING EXISTING FLOOR COATINGS

A. General.
1. Work in areas approximately 4' by 4' at one time.
2. Apply floor stripper using a brush or roller in accordance with manufacturer's instructions.
3. Allow stripper to stand for length of time as recommended by manufacturer, depending upon the number of surface layers to be stripped; if necessary, cover with plastic sheeting to keep the stripper moist.
4. Using a broad knife or scrapper, remove stripper from the surface.
5. Safely dispose of paint and stripper residue.

B. For varnish buildup.
1. Wet steel wool with solvent and rub over the wood surface to remove varnish buildup and to smooth out any checks in the surface.
2. Replace steel wool frequently with clean, and continue the wiping process until a smooth surface is achieved.
3. NOTE: DO NOT USE WATER ON THE WOOD SURFACE.
4. Wipe wood with a clean cloth soaked in mineral spirits to remove chemical residue.
5. Allow to dry and dry-brush loose material from the surface using a short fiber bristle brush.
6. Repeat as necessary to sufficiently remove the previous coating.

C. Procedures for Varnished Wood Floors.
1. Sand the floor with an orbital sander to remove stains, old finish and indentations in the wood. Sand in direction of wood grain. NOTE: DO NOT REMOVE MORE THAN 1/16" OF THE WOOD SURFACE.
2. Remove dust from floor with vacuum and tack cloth.

D. Procedures for Waxed Wood Floors.
1. Dampen small area of floor with turpentine or mineral spirits, or apply wax remover evenly over the floor following manufacturer's instructions.
2. Using a 16" electric floor machine, scrub lightly with a piece of 000 steel wool or nylon web scrubbing pad. Change steel wool or pads as they become clogged with old wax.
3. Wipe up solvent and wax with clean cloths.

4. Continue cleaning in this manner until all of the old wax has been removed. Allow floor to dry, approximately 15-20 minutes after the last area has been cleaned.

3.03 REPAIRING SMALL HOLES AND SURFACE CRACKS.

A. Fill scratches, gouges and dents with wood filler.

B. Dampen a clean cloth with mineral spirits and wipe the paste off across the grain of the wood to enable the filler to remain in the grain depressions.

C. When filling a hole or crack, add filler in layers and allow drying time between layers.

D. If a floorboard is splintered, glue the splinter down and fill the crack.

E. If damage is such that it cannot be successfully filled and the board is relatively easy to remove, turn the board over rather than replacing it. The new surface should be sanded to match surrounding boards and may need to be shimmed to make it level with the existing surface.

F. If board cannot be reused, replace with new strip and patch in to match existing.

3.04 REPAIRING CRACKS BETWEEN FLOORBOARDS.

A. Fill with a trowelable wood filler or homemade paste filler using the procedure below.
   1. Mix sawdust with varnish, shellac or white glue, or mix tissue paper, glue size, and calcined magnesia to a mass like putty.
   2. Press mixture into crack using putty knife and finish smooth so it is level with the floor surface.

B. For large cracks that are hazardous, fill with a thin strip of wood.
   1. Thoroughly clean the opening of dirt and debris using a stiff bristle brush and vacuum.
   2. Slip a thin strip of wood into the crack. Match the depth of the surrounding floor and stain to match.
   3. Nail or glue the strip to only one side of the crack to allow for expansion and contraction.
   4. If crack cannot be repaired, replace with a new wood strip and patch in to match existing.

3.05 INSTALLATION.

A. Wood Flooring
   1. Install in accordance with manufacturer's, MFMA, and NWFA instructions; predrill and blind nail to sleepers.
   2. Lay flooring in pattern to match existing. Verify alignment as work progresses.
   3. Terminate flooring at centerline of door openings where adjacent floor finish is dissimilar; provide divider strips and transition strips in accordance with flooring manufacturer's recommendations and as indicated.
   4. Install edge strips at unprotected or exposed edges, and where flooring terminates.
   5. Secure edge strips before installation of flooring with stainless steel screws.
   6. Install flooring tight to floor access covers.
   7. Sheathing paper: Place over wood subfloor; lap edges and ends 2 inches (50 mm), staple in place.
   8. Vapor Retarder: Where wood flooring is installed on concrete slab, install a layer of polyethylene sheet according to flooring manufacturer’s written instructions.
   9. Provide 3/4-inch (19.05 mm) expansion space at fixed walls and other interruptions.
   10. Do not nail baseboards to flooring. Nail baseboard to wall and nail shoe or other molding trim to baseboard.
   11. Coordinate with Electrical for locations of in-floor devices.

3.06 FINISHING.

A. Mask off adjacent surfaces before beginning sanding.

B. Sand flooring to smooth even finish with no evidence of sander marks. Take precautions to contain dust. Remove dust by vacuum.

C. Apply filler according to manufacturer’s written instructions in order to repair seams and defects.

D. Apply stain to match approved sample, if required.

E. Apply finish in accordance with floor finish manufacturer's and MFMA instructions. Apply in number of coats recommended by finish manufacturer for application indicated, but not less than three.

F. Apply first coat, allow to dry, then buff lightly with steel wool to remove irregularities.

G. Vacuum clean and wipe with damp cloth before applying succeeding coat.

H. Lightly buff between coats with steel wool and vacuum clean before applying succeeding coat.

I. Apply last coat of finish.

3.07 CLEANING.

A. Clean and polish floor surfaces in accordance with floor finish manufacturer's instructions.

3.08 PROTECTION.

A. Prohibit traffic on floor finish for 48 hours after installation.

B. Place protective coverings over finished floors; do not remove coverings until Substantial Completion.

END OF SECTION 096430

SECTION 096600 - TERRAZZO FLOORING RESTORATION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Cleaning of existing terrazzo.

B. Repairing damaged terrazzo.

C. Patching cracks in terrazzo with epoxy resin.

D. Patching minor chips and cracks in terrazzo with cement grout.

E. Sealing of terrazzo.

1.02 RELATED REQUIREMENTS

A. Section 079200 - Joint Sealants: Sealing joints between terrazzo flooring and adjacent construction and fixtures.

1.03 REFERENCE STANDARDS

A. NTMA (SPECS) - Terrazzo Specifications; The National Terrazzo and Mosaic Association, Inc.; current edition located at www.ntma.com <http://www.ntma.com>.

1.04 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: Convene one week prior to commencing work of this section.

1.05 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide data, procedures and application instructions for all products used in terrazzo repair including stripping, stain removal and sealing before the work begins. Include a printed copy of current NTMA recommendations for the type of terrazzo involved.

C. Shop Drawings: Show diagram of all anticipated repairs.

D. Samples: Submit two samples, 6 x 6 inch (150 x 150 mm) in size illustrating color, chip size and variation, chip gradation, mortar color, and typical divider strip.

E. Qualifications: Submit qualifications for each worker as outlined in Section 1.06.C.1 below.

1.06 QUALITY ASSURANCE

A. Perform work in accordance with NTMA recommendations as posted on their web site at ntma.com.

B. Installer Qualifications: Company specializing in performing the work of this section with no fewer than 5 years of documented experience working with historical terrazzo repair and restoration. All workers performing terrazzo work shall be trained in all phases of terrazzo repairs including selecting the appropriate repair method. Personnel performing terrazzo repairs work shall be same personnel who perform approved repair samples. Contractor shall keep a current listing of approved personnel for terrazzo repairs on site.

C. Field Quality Control: Work in place shall be subject to Architect's approval. Work found to be unacceptable shall be replaced with new, acceptable work.

1. Qualification Requirements: Review of the qualification of the workmen for this section is a requirement of this project. In order to be qualified for this work, the Contractor shall submit for review a list of projects showing the experience of each team member as outlined in the Quality Assurance section of this specification.
    a. For each worker identify each project by name, location and provide a description of the scope of work, contract dollar value, date of completion, a reference contact, and a description of the worker's responsibility on the project.
    b. If, in the opinion of the Architect and Owner, the work does not meet the requirements for this section, the Contractor shall be required to submit alternate workmen providing a full set of quality assurance submittals for the worker for review.

1.07 1.07 MOCK-UP

A. Provide a sample of each repair type (cracks, chips, repointing and cleaning) using materials and methods specified herein, and the tools and equipment intended to be used by the workmen performing the work.

B. Sample locations shall be selected by the Architect in consultation with the Contractor.

C. Additional mock-up samples shall be provided until an acceptable result is achieved.

D. Before full scale work commences, each sample shall be reviewed by the Architect and Owner.

E. The accepted mock-up samples shall be the standard for the work. All samples shall be retained throughout the duration of the project and may be incorporated into the work upon completion.

F. The Contractor shall ensure that the mock-up samples are performed by the same Contractor's personnel who are to perform the work of the overall project.

1.08 FIELD CONDITIONS

A. Do not install terrazzo when temperature is below 50 degrees F (10 degrees C) or above 90 degrees F (32 degrees C).

B. Maintain temperature within specified range 24 hours before, during, and 72 hours after installation of terrazzo.

C. Provide ambient lighting level of 50 ft candles (540 lx), measured at floor surface.

PART 2 PRODUCTS

2.01 MATERIALS FOR REPAIRING DAMAGED TERRAZZO

A. PORTLAND CEMENT: ASTM C150, TYPE I, EXCEPT AS MODIFIED TO COMPLY WITH NTMA REQUIREMENTS FOR COMPRESSIVE STRENGTH. OBTAIN CEMENT FROM A SINGLE SOURCE FOR EACH REQUIRED COLOR.
   1. Provide non-staining white cement for terrazzo matrix.

B. Sand: ASTM C33

C. Water: Clean, free of oil, soluble salts or other deleterious substances.

D. Aggregate: Natural, sound, crushed marble chips without excessive flats or flakes, complying with NTMA requirements.
   1. Colors and gradation of aggregate sizes as required to match original existing intact materials and patterns.
   2. Aggregate colors and matrix pigments should be matched after cleaning or taken from the interior of core samples depending upon scope of work.

E. Matrix Pigments: Pure mineral or synthetic pigments, resistant to alkalis and non-fading. Mix pigments with matrix to provide required colors.

F. Curing Compound: Liquid-membrane-forming compound, ASTM C309, Type 1.

G. Divider Strips in new spaces (not requiring restoration):
   Depth and style required for terrazzo type and thickness. Divider strips should be of solid composition and match existing (size, color, material). Materials may be brass, zinc... Do not use coated divider strips.
   1. CAUTION: Divider strips may be coated instead of solid composition. Coated strips should not be ground. Grinding may cause coated divider strips to lose their coating and discolor.
   2. NOTE: Use conventional terrazzo grinding equipment rather than lighter type machines.

H. Accessory Strips: Match width, material and color of divider strips, unless otherwise required. Provide following types of accessory strips as required for complete installation.
   1. Control Joint Strips: Double or split units, 1/8" wide, of same material and color as divider strips with 1/8" wide full-depth filler, laminated between strips.

I. Adhesive Bonding Agent: Epoxy or polyester resin.

J. MIXES
   1. Underbed: One part portland cement to 4-1/2 parts sand and sufficient water to provide workability at as low a slump as possible.
   2. Terrazzo Topping: One 94-pound bag of portland cement as per 200 pounds of marble chips and approximately 5 gallons of water.
      a. Add color pigment as required to match existing color. Do not exceed, however, 2 pounds of pigment per bag of cement.

2.02 2.02 MATERIALS FOR REPAIRING TERRAZZO CRACKS WITH EPOXY PATCHING

A. Patching Resin: Manufacturer's standard 2-component epoxy resin, designed specifically for patching of terrazzo materials.
   1. Tint to match color of existing terrazzo matrix following manufacturer's recommendations.

B. Aggregate for Epoxy: Natural, sound, crushed marble chips without excessive flats or flakes, complying with NTMA requirements.
   1. Colors and gradation of aggregate sizes as required to match existing terrazzo aggregate material.
   2. Aggregate colors should be matched after cleaning or taken from the interior of core samples depending upon scope of work.

C. Ammonia or chemical stripper.

D. Interior Floor Sealer: Colorless, slip and stain resistant penetrating sealer with ph factor between 7 and 10, that does not affect color or physical properties of terrazzo surface.

E. Clean, potable water.

2.03 MATERIALS FOR REPAIRING MINOR TERRAZZO CHIPS AND CRACKS WITH CEMENT

A. Portland Cement: ASTM C150, Type I, except as modified to comply with NTMA requirements for compressive strength. Obtain cement from a single source for each required color.
   1. Provide non-staining white cement for terrazzo matrix.

B. Sand: ASTM C33.

C. Clean, potable water.

D. Aggregate: Natural, sound, crushed marble chips without excessive flats or flakes, complying with NTMA requirements.
   1. Colors and gradation of aggregate sizes as required to match original existing intact materials and patterns. Original plans often contain the exact terrazzo mix.
   2. Aggregate colors should be matched after cleaning or taken from the interior of core samples depending upon scope of work.

E. Matrix Pigments: Pure mineral or synthetic pigments, resistant to alkalis and non-fading. Mix pigments with matrix to provide required colors.

F. Curing Compound: Liquid-membrane-forming compound, ASTM C309, Type 1.

G. Grout: A cement acrylic grout with color added to match the matrix of the original terrazzo.

H. Interior Floor Sealer: Colorless, slip and stain resistant penetrating sealer with Ph factor between 7 and 10, that does not affect color or physical properties of terrazzo surface.

I. Plastic Sheeting.

2.04 MATERIALS FOR STRIPPING AND CLEANING TERRAZZO FLOORING

A. Stripper: Neutral chemical Gel stripper and wax coating remover with ph factor between 7 and 10 that does not affect color or physical properties of terrazzo surface.
   1. Enviro Klean Safstrip manufactured by Prosoco, Inc. or approved equal.
   2. Stripper must also be appropriate for stripping adjacent marble.

B. Cleaner: Liquid, neutral chemical cleaner, with ph factor between 7 and 10 of formulation recommended by sealer manufacturer for type of terrazzo used, and complying with NTMA requirements.
   1. Sure Klean 942 Limestone and Marble Cleaner manufactured by Prosoco, Inc., or approved equal.
   2. Cleaner must be appropriate for cleaning of adjacent marble.

C. Compound Cleaner: A mildly abrasive phosphate free cleaning compound containing no caustic or harsh fillers, manufactured specifically for restorative type cleaning of terrazzo surfaces.
   1. Sure Klean Marble Poultice as manufactured by Prosoco, Inc. or

   approved equal.

D. Interior Floor Sealer: Colorless, slip and stain resistant penetrating sealer with ph factor between 7 and 10, that does not affect color or physical properties of terrazzo surface.
   1. Stand Off Stone, Tile & Masonry Protector as manufactured by Prosoco, Inc. or approved equal.
   2. Sealer must be appropriate for sealing adjacent marble.

E. Clean, potable water.

2.05 EQUIPMENT FOR REPAIRING TERRAZZO CRACKS AND SPALLS

A. General: Tools and equipment shall be as specified by referenced standards and as specified within this section. No tools shall be used which will cause damage or undue wear to the existing terrazzo.

B. Grinding Stones: Fine grit emery stones manufactured specifically for restorative type grinding and surfacing of terrazzo surfaces (#40 and #80 grit stones).

C. Hand sander, power saw and hand tools.

D. Resurfacing Screens: A fine grit screen manufactured specifically for restorative type grinding and resurfacing terrazzo surfaces.

2.06 EQUIPMENT FOR STRIPPING TERRAZZO FLOORING

A. Wet vac.

B. Paint roller.

C. Low pressure tank sprayer.

D. Power scrubber with scrub brush attachment.

E. Stiff bristle brushes (natural or nylon bristle).

PART 3 EXECUTION

3.01 EXAMINATION

A. Perform a thorough examination of the existing conditions.

B. Verify that substrate surfaces are ready to receive work.

C. Examine the terrazzo to determine the type of terrazzo topping used. Match marble chips and matrix for existing terrazzo by size, mineral content and color. Color samples should be taken after cleaning.

D. Perform any necessary tests on an inconspicuous surface to determine the conditions, steps, materials, suitability and desired results before beginning overall application.

3.02 PREPARATION

A. Surface Preparation:
   1. Clean and prepare substrate to comply with NTMA specifications for type of terrazzo application indicated. Clean substrate of loose chips and foreign matter. Grind concrete substrate to provide surfaces within tolerances required by NTMA for type of terrazzo application.

2. For cementitious terrazzo, comply with NTMA recommendations for proportioning mixes, installation of strips, and for placing, curing, grinding, grouting and finishing.

3.03 REPAIRING DAMAGED TERRAZZO

A. Match the historic character and pattern of the terrazzo in all spaces containing or contiguous with existing terrazzo.

B. Verify type of terrazzo application.

C. Bonded-to-Concrete Terrazzo: Comply with NTMA " Guide Specification for Bonded Terrazzo".
   1. Minimum overall thickness (most common) is 1-3/4"; With reinforcing, 2 or 2-1/2" inches.
   2. Thoroughly clean and soak the base slab with water.
   3. Slush it with dry portland cement to ensure a good bond.
   4. Install the underbed followed by the placing of divider strips (as required) and terrazzo topping.

D. Monolithic Terrazzo: Installed at 5/8" thick, bonded to or made integral with the prepared slab.

E. Surfacing: Grout cured terrazzo topping in accordance with NTMA specifications.
   1. Finish by fine grinding with abrasive grit of size specified by NTMA, or as otherwise required to match original intact material.
   2. Grind and polish new areas, patches and adjacent areas of the floor as required to produce a clean, smooth and uniform finish, capable of being sealed to match the original installation.
   3. Repair control joints to match existing, if required, by installing angle-type divider strips back-to-back with neoprene rubber filler cemented between strips, flush with finish floor.
   4. Cover with vapor barrier sheets to prevent quick hydration.

3.04 REPAIRING CRACKS WITH EPOXY PATCHING

A. Remove all foreign matter from the void, followed by routing with a power tool. Remove all sealer from the surface adjacent to the void with a stripper or ammonia.

B. Blend the resin materials to match the color matrix, by adding marble dust or pigment.

C. Force mixed resin into the void, making sure it is pressured into the crack as deep as possible. In some cases, the supplier will instruct using a primer for their materials.

D. If the void is large enough, and the intent is to disguise the line so it will blend into the rest of the terrazzo floor, irregularly place marble chips matching the existing terrazzo blend along the line approximately one to two inches on center. Be sure to do this, however, while the patching resin is still in a wet state. Finally, tool off surface and allow to cure.

E. When the material has hardened, sand surface with a hand sander or small grinding tool, using fine stones.
   1. Use a #40 or finer grit stone for the initial grinding, exposing the marble chips. Follow with a fine #80 grit stone before grouting with cement to fill all pinholes.
      a. Divider strips may be coated instead of solid composition. Coated strips should not be ground. Grinding may cause coated divider strips to lose their coating and discolor.
   2. Cover grouted surface with paper or polyethylene for at least 72 hours.
   3. Thoroughly rinse the surface with clean, clear water.
   4. Remove excess rinse water and allow to dry.
   5. Final polish with a #80 or finer grit stone. Care should be taken to limit grinding and polishing to a small distance beyond the perimeter of the patch.

F. For some time, this area will be noticeable, however, with normal maintenance, the area will blend into the balance of the floor.

3.05 REPAIRING MINOR CHIPS AND CRACKS WITH CEMENT

A. A. General: Minor chips and cracking in terrazzo require patching ONLY when surface irregularities present safety hazards or when it is necessary to prevent further deterioration to the terrazzo.

B. Match marble chips and matrix for existing terrazzo by size, mineral content and color. Colors should be matched after cleaning or taken from the interior of core samples depending upon scope of work.

C. Mix two parts blended marble chips with one part Portland Cement and add enough water to make this mix plastic.

D. Place mixture over chip or crack and level with a trowel.

E. Seed additional marble chips of the same blend over the patch, as required to establish a uniform coverage.

F. Compact patch, removing all excess water and cement from the surface.

G. Cover the patch with paper or polyethylene sheeting to prevent quick hydration. Cure until topping develops sufficient strength to prevent lifting or pulling of terrazzo chips during grinding.

H. Sand surface with a hand sander or small grinding tool, using fine stones to achieve desired finish.
   1. Use a #40 or finer grit stone for the initial grinding, exposing the marble chips. Follow with a fine #80 grit stone before grouting with cement to fill all pinholes.
   2. Divider strips may be coated instead of solid composition. Coated strips should not be ground. Grinding may cause coated divider strips to lose their coating and discolor.
   3. Cover grouted surface with paper or polyethylene for at least 72 hours.
   4. Thoroughly rinse the surface with clean, clear water.
   5. Remove excess rinse water and machine or hand apply grout using identical portland cement, color and pigments as used in topping taking care to fill all voids completely.
   6. Final polish with a #80 or finer grit stone. Care should be taken to limit grinding and polishing to a small distance beyond the perimeter of the patch.

I. I. Seal patch with a penetrating type terrazzo sealer.

3.06 CLEANING

A. At completion of all terrazzo repair work, clean all terrazzo by stripping the floor down to the original surface, cleaning, and then sealing with a long-lasting sealer.

B. Strip existing sealers and coatings from floor:
   1. Apply floor stripper with paint roller and let stand for five to ten minutes. Work in areas no more than four feet wide to insure that the applicator is always standing on a dry floor.
   2. Using a low pressure tank sprayer, apply a mist of water over the cleaner already on the floor. The water will emulsify the old sealer and dilute the thixotropic cleaner.
   3. Pick up all remaining residues with a wet vac.
   4. Using a power scrubber with a scrub brush attachment, scrub the floor until all coating material has been removed.
   5. Pick up all liquid residues with a wet vac.
   6. Thoroughly rinse the surface with clean, clear water.
   7. Pick up all remaining liquid residues with a wet vac and allow to dry.

C. Clean terrazzo using cleaner specified above.
   1. Apply a thick, uniform coating to the surface using a brush or airless spray equipment.
   2. Let the cleaner stay on the surface for 2-24 hours. For long dwell periods, cover treated areas with polyethylene to prevent premature drying. Appropriate dwell times for safe, effective cleaning to be determined through on-site testing and mock-ups before full-scale cleaning operations.
   3. Remove gel and as much residue from the surface as possible.
   4. Rinse surface thoroughly with fresh water using a sponge, soft cloth or low-pressure/low-volume water rinsing equipment.
   5. Repeat application where necessary.
   6. If dirt and scratches have become so severe that normal stripping and cleaning no longer restore the floor to its original luster, contact the Architect immediately for further direction.

D. Treat remaining stains with Poultice as required.

1. Apply prepared poultice mix to the surface using a wooden or plastic spatula Apply a uniform ¼” coating.
2. Cover poultice with protective paper and tape/seal off edges.
3. Leave the covered poultice on the surface of the terrazzo 12-24 hours.
4. Remove protective paper. If still wet, let poultice dry 2-4 hours.
5. After completely dry, remove the poultice and dissolved staining matter using a wooden or plastic spatula to avoid scratching the surface.
6. Washing the surface thoroughly with water using a sponge or cloth. Let surface dry completely.
7. Once the surface has dried completely, check for remaining residue and repeat the treatment if required by Architect. For bidding purposes, assume the poultice will need to be applied up to 5 times to achieve desired level of cleanliness.

E. Seal the terrazzo surface with two coats impregnating sealer specified above according to manufacturer's instructions.

3.07 PROTECTION

A. Contractor to protect restored terrazzo flooring from damage and wear during construction operation.

3.08 MAINTENANCE

A. A. Owner to maintain terrazzo floors as follows:
   1. Daily Cleaning:
      a. Sweep daily with a cotton-wick floor brush treated with a non-oily dressing, to control dust and make maintenance easier.
      b. Regular damp-mopping keeps the surface free from dirt accumulations.
   2. Periodic Cleaning:
      a. Machine buffing on a regular basis removes traffic marks and restores luster.
      b. Touching up with sealer in traffic areas as needed protects the surface.
      c. Periodic machine scrubbing removes heavy accumulations of dirt.
      d. Re-seal with a penetrating type terrazzo sealer as needed.

END OF SECTION 096600

SECTION 099100 - PAINT REMOVAL FROM SANDSTONE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal of paint from sandstone surfaces using chemical paint stripper or poultice.

1.02 RELATED REQUIREMENTS:

A. Section 099123 Historic Interior Painting

1.03 SUBMITTALS

A. See Section 01300 – Administrative Requirements for submittals procedures.

B. Product Data: Provide data, manufacturer's specifications recommended procedures for each product.

C. Work Description: Submit a written work description for proposed paint removal.
   1. Identify methods and materials proposed for each type of paint removal.
   2. Submit list of all required equipment.
   3. Detail sequence of operations and schedule of work.

D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.

E. Mockups: Apply mockup for each condition as follows to demonstrate aesthetic effects and qualities of materials and execution.
   1. Field sample panels shall be of an appropriate size to demonstrate relevant paint removal and cleaning methods. Samples shall establish proper stripper and/or cleaner to be used, application techniques (spray, trowel, brush, etc.) dilution, dwell time, number of applications, proper removal and rinsing techniques (spray wash, sponges, etc.), compatibility, effectiveness and desired results. Coordinate locations with Architect.
   2. Allow test panels to dry a minimum of 48 hours before judging effectiveness.
   3. More than one sample panel may be required if results of initial sample panel are unacceptable.
   4. Upon approval by the Owner, sample panels will be the standard for judging the workmanship and acceptability of the balance of paint removal and operations.
   5. Manufacturer representative shall attend all mock-ups.
   6. Simulate finished lighting conditions for review of mockups.
   7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.04 QUALITY ASSURANCE

A. Installer Qualifications: Company specializing in performing the work of this section with minimum 5 years of experience.

B. Manufacturer: Contractor to contact product manufacturer to obtain training. Manufacturer to consult with Contractor on work plan, product selection and attend field test mock-ups.

C. Requirement: Remove paint from sandstone without harming the original substrate material.

D. Statement of Application: By undertaking work of this section, assume overall responsibility and warrant the following:
   1. All components are compatible with each other and with conditions of expected use.
   2. All materials and application methods are compatible with adjacent materials and with adjacent work of other trades.
   3. Hazardous Waste: Paint may contain measurable quantities of lead that may require disposal as hazardous waste. Follow local regulations for removal and containment of hazardous materials. Provide additional tests as required.

1.05 FIELD CONDITIONS

A. Remove paint from sandstone surfaces only when air temperatures are between 40¡ F and 90¡ F and will remain so until the substrate is completely dry.

B. Disposal: Dispose of all waste materials in a safe and legal manner.

C. Regulations: Conform to all applicable federal, state and local environmental regulations regarding testing, handling, treatment, containment, collection, transport disposal and discharge of hazardous wastes.

1.06 PROTECTION

A. Protect all adjacent areas from contact with paint removal materials by erecting properly constructed protection positioned to confine and prevent overspray of water or chemicals.

B. Do not use acids or flame tools to strip paint from stone, as it will damage the surface.

C. Do not use steel or metal spatulas or tools to scrape stone because of the likelihood of scratching, chipping, gouging, or otherwise marring the surface.

PART 2 PRODUCTS

2.01 2.01 MANUFACTURERS

A. Paint stripper:
   1. Sure Klean Fast Acting Stripper as manufactured by Prosoco, Inc., www.prosoco.com
   2. Substitutions: Must be approved in writing by Architect.

2.02 MATERIALS

A. Clean, potable water

B. Provide all required hoses, valve connections, pumps, nozzles and other necessary water conveying components to provide water where needed.

C. Clean, natural fiber rags for drying

D. Solvents such as acetone or denatured alcohol.

E. Filler material such as attapulgite clay, kaolin, fuller's earth, talc, chalk, cotton pads, acid-free paper. (Do not use chalk or iron-containing clay with an acid solvent as their chemical reaction will cancel the effectiveness of the acid).

F. Other manufacturer products may be required for a complete installation. These products are considered to be part of each system as established during field-testing mock-up process.

2.03 EQUIPMENT

A. Garden hose and nozzle

B. Wood or plastic spatulas

C. Stiff fiber or jute bristle brushes (No Metallic)

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine the sandstone surface CAREFULLY to determine the type of paint used before proceeding with any cleaning operation.

3.02 PROTECTION

A. Install protection to prevent damage to adjacent surfaces, and building occupants.

3.03 INSTALLATION

A. Thoroughly rinse the stained/painted area with clean, clear water, while carefully removing loose paint using a wooden scraper. Allow surface to thoroughly dry.

B. Brush apply a coat of paint stripper over the surface (approximately 1/8" thick), and allow to dwell until paint is lifted from the surface; follow manufacturer's instructions.

C. Scrape off softened paint with a wooden spatula.

D. Thoroughly rinse the surface with clean, clear water and allow to dry.

E. Repeat the process as necessary to sufficiently remove the paint.

F. For stubborn paint stains, poulticing may be required.

1. Create a poultice by mixing an appropriate solvent with a filler material.
2. Apply the mixture to the stained area in a 1/4" to 3/4 " thick layer using a wood or plastic spatula and allow to dry. Be sure to spread the poultice well beyond the stained area. The liquid portion of the paste will migrate into the masonry where it will dissolve some of the staining material. The liquid will gradually move back beyond the masonry surface and into the poultice, where it will evaporate, leaving the dissolved staining material in the poultice.
3. Allow poultice to dwell, keeping it moist until the stain has lifted. Secure a polyethylene sheet over the poultice to reduce evaporation. Exact length of dwell time will vary and will require periodic inspection of the substrate.
4. Once it appears that the stain has lifted, allow the poultice to dry out. As the poultice dries the solvent is re-absorbed by the poultice material bringing with it the stain.
5. The poultice should fall off naturally as it dries. Remove remaining material with a wooden spatula and natural bristle brush.
6. Rinse the surface thoroughly with clean, clear water and allow to dry.
7. Repeated applications of poultice may be required.

3.04 ADJUSTING/CLEANING

A. Upon completion of paint removal or cleaning operations, remove tools, equipment, products, protection and any other unnecessary materials from the site. Remove and legally dispose off-site debris, residues, rinse water and waste in accordance with environmental regulations.

END OF SECTION 099100

SECTION 099123 - INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints, stains, and varnishes.

C. Materials for backpriming woodwork.

D. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. In finished areas, paint shop-primed items.
      c. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
      d. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

E. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Ceramic and other tiles.
   9. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
   10. Glass.
   11. Concrete masonry units in utility, mechanical, and electrical spaces.
   12. Acoustical materials, unless specifically indicated.
   13. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; current edition, www.paintinfo.com.

C. SSPC-SP 1 - Solvent Cleaning; 1982 (Ed. 2004).

D. SSPC-SP 6 - Commercial Blast Cleaning; Society for Protective Coatings; 2007.

E. SSPC-SP 13 - Surface Preparation of Concrete; Society for Protective Coatings; 2003 (Reaffirmed 2015).

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).

3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
4. Manufacturer's installation instructions.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.

D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 016000 - Product Requirements, for additional provisions.
2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
3. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience and approved by manufacturer.

1.05 MOCK-UP

A. See Section 014000 - Quality Requirements, for general requirements for mock-up.

B. Provide panel, 10 feet (3 m) long by 10 feet (3 m) wide, illustrating paint color, texture, and finish.

C. Locate where directed by Architect.

D. Mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Minimum Application Temperatures for Paints: 50 degrees F (10 degrees C) for interiors unless required otherwise by manufacturer's instructions.

D. Minimum Application Temperature for Varnish Finishes: 65 degrees F (18 degrees C) for interior, unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.

1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.

B. Paints:
   1. Sherwin-Williams Company: www.sherwin-williams.com.
   2. Or Approved Equal.

C. Transparent Finishes:
   1. Sherwin-Williams Company: www.sherwin-williams.com.
   2. Or Approved Equal.

D. Substitutions: See Section 016000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
   1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
   2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   4. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   5. Supply each paint material in quantity required to complete entire project's work from a single production run.
   6. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Flammability: Comply with applicable code for surface burning characteristics.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

D. Colors: As indicated on drawings.
   1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
   2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
   3. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, plaster, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.
   2. Top Coat(s): Interior Latex; MPI #43, 44, 52, 53, 54, or 114.
      a. Products:
         1) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Flat.
         2) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Semi-Gloss. (MPI #43)
         3) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Eg-Shel. (MPI #52)
   3. Top Coat Sheen:
      a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
      b. Satin: MPI gloss level 4; use this sheen at all locations.
      c. Semi-Gloss: MPI gloss level 5; use this sheen at surfaces subject to frequent contact by occupants..
   4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Paint I-TR -W - Transparent Finish on Wood.
   1. 1 top coat over sanding sealer over stain.
   2. Wood Filler:
      a. Products:
         1) Sherwin-Williams Sher-Wood Fast Dry Filler.
   3. Stain: Semi-Transparent Stain for Wood; MPI #90.
   4. Sealer: Acrylic, Sanding Sealer, Clear; MPI #102.
      a. Products:
         1) Sherwin-Williams Sher-Wood Fast Dry Vinyl Sealer..
   5. Top Coat(s): Clear Water Based Varnish; MPI #129.
      a. Products:
         1) Sherwin-Williams Sher-Wood Kem Aqua Plus, Satin.

C. Paint I-TR-FL - Transparent Finish on Wood Floors:
   1. 2 top coats over sealer over filler.
   2. Wood Filler:
      a. Products:
         1) DuraSeal Wood Filler.
   3. Sealer:
      a. Products:
         1) DuraSeal DuraClear Sealer.
   4. Top Coat(s): One component, non-ambering, water-based urethane finish.
      a. Products:
         1) DuraSeal DuraClear Floor Finish.
   5. Top Coat Sheen:
      a. Satin: MPI gloss level 4; use this sheen for flooring.

D. Paint I-TR-C - Transparent Finish on Concrete Floors.
   1. Sealer: Water Based for Concrete Floors; MPI #99.
      a. Products:
         1) Sherwin-Williams H&C Wet Look Sealer (MPI #99).
   2. Sealer Sheen:
      a. Eggshell: MPI gloss level 3; use this sheen at all locations.

E. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer.
   2. Semi-gloss: Two coats of interior latex.

F. Paint MI-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
   1. Touch-up with latex primer.
   2. Semi-gloss: Two coats of interior latex.

G. Paint MgI-OP-3L - Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer.
   2. Semi-gloss: Tow coats of interior latex.

H. Paint MaI-OP-3L - Aluminum, Unprimed, Latex, 3 Coat:
   1. One coat etching primer.
   2. Semi-gloss: Two coats of interior latex.

2.04 PRIMERS

A. Primers: Provide the following, or approved equal, unless other primer is required or recommended by manufacturer of top coats.
   1. Interior Institutional Low Odor/VOC Primer Sealer; MPI #149.
      a. Products:
         1) Sherwin-Williams Harmony Interior Latex Primer .
   2. Interior Latex Primer Sealer; MPI #50.
      a. Products:

1) Sherwin-Williams, Pro-Cryl Universal Primer..

3. Interior Rust-Inhibitive Water Based Primer; MPI #107.
   a. Products:
      1) Sherwin Williams Pro-Cryl Universal Primer.
4. Interior Water Based Primer for Galvanized Metal; MPI #134.
   a. Products:
      1) Sherwin-Williams Pro Cryl Universal Primer.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.

G. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

I. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

J. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

K. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

L. Ferrous Metal:
   1. Solvent clean according to SSPC-SP1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

M. Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

3.02 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

G. Sand wood and metal surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

J. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.03 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.04 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

3.05 SCHEDULE - PAINT SYSTEMS

A. Gypsum Board: Finish surfaces exposed to view.
   1. Interior Ceilings and Bulkheads: I-OP-1, flat.
   2. Interior Walls: I-OP-3, eg-shel.

B. Plaster: Finish surfaces exposed to view.
   1. Interior Walls: I-OP-3, Eg-shel.
   2. Interior Ceilings: I-OP-1, Flat.
   3. Interior grilles, railings, items subject to touch, I-OP-2, Semi-gloss.

C. Woodwork: Finish surfaces exposed to view.
   1. 1. Interior: I-TR-W, satin.

D. Wood Flooring: Finish surfaces exposed to view.
   1. Interior Floors: I-TR-FL, satin.

E. Aluminum: Finish surfaces exposed to view.
   1. Interior: Mal-OP-3L.

F. Galvanized Steel: Finish surfaces exposed to view.
   1. Interior: Mgl-OP-3L.

G. Shop-Primed Metal Items: Finish surfaces exposed to view.
   1. Finish the following items:
      a. Mechanical equipment.
      b. Electrical equipment.
   2. Interior: I-OP-2.

END OF SECTION 099123

SECTION 099123 - INTERIOR PAINTING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Surface preparation.

B. Field application of paints, stains, and varnishes.

C. Materials for backpriming woodwork.

D. Scope: Finish interior surfaces exposed to view, unless fully factory-finished and unless otherwise indicated.
   1. Mechanical and Electrical:
      a. In finished areas, paint insulated and exposed pipes, conduit, boxes, insulated and exposed ducts, hangers, brackets, collars and supports, mechanical equipment, and electrical equipment, unless otherwise indicated.
      b. In finished areas, paint shop-primed items.
      c. Paint interior surfaces of air ducts and convector and baseboard heating cabinets that are visible through grilles and louvers with one coat of flat black paint to visible surfaces.
      d. Paint dampers exposed behind louvers, grilles, and convector and baseboard cabinets to match face panels.

E. Do Not Paint or Finish the Following Items:
   1. Items factory-finished unless otherwise indicated; materials and products having factory-applied primers are not considered factory finished.
   2. Items indicated to receive other finishes.
   3. Items indicated to remain unfinished.
   4. Fire rating labels, equipment serial number and capacity labels, bar code labels, and operating parts of equipment.
   5. Stainless steel, anodized aluminum, bronze, terne coated stainless steel, and lead items.
   6. Marble, granite, slate, and other natural stones.
   7. Floors, unless specifically indicated.
   8. Ceramic and other tiles.
   9. Brick, architectural concrete, cast stone, integrally colored plaster and stucco.
   10. Glass.
   11. Concrete masonry units in utility, mechanical, and electrical spaces.
   12. Acoustical materials, unless specifically indicated.
   13. Concealed pipes, ducts, and conduits.

1.02 REFERENCE STANDARDS

A. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association; current edition, www.paintinfo.com.

B. MPI (APSM) - Master Painters Institute Architectural Painting Specification Manual; current edition, www.paintinfo.com.

C. SSPC-SP 1 - Solvent Cleaning; 1982 (Ed. 2004).

D. SSPC-SP 6 - Commercial Blast Cleaning; Society for Protective Coatings; 2007.

E. SSPC-SP 13 - Surface Preparation of Concrete; Society for Protective Coatings; 2003 (Reaffirmed 2015).

1.03 SUBMITTALS

A. See Section 013000 - Administrative Requirements, for submittal procedures.

B. Product Data: Provide complete list of products to be used, with the following information for each:
   1. Manufacturer's name, product name and/or catalog number, and general product category (e.g. "alkyd enamel").
   2. MPI product number (e.g. MPI #47).

3. Cross-reference to specified paint system(s) product is to be used in; include description of each system.
4. Manufacturer's installation instructions.

C. Samples: Submit three paper "draw down" samples, 8-1/2 by 11 inches (216 by 279 mm) in size, illustrating range of colors available for each finishing product specified.
1. Where sheen is specified, submit samples in only that sheen.
2. Where sheen is not specified, discuss sheen options with Architect before preparing samples, to eliminate sheens definitely not required.

D. Certification: By manufacturer that paints and finishes comply with VOC limits specified.

E. Manufacturer's Instructions: Indicate special surface preparation procedures.

F. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
1. See Section 016000 - Product Requirements, for additional provisions.
2. Extra Paint and Finish Materials: 1 gallon (4 L) of each color; from the same product run, store where directed.
3. Label each container with color in addition to the manufacturer's label.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified, with minimum three years documented experience.

B. Applicator Qualifications: Company specializing in performing the type of work specified with minimum three years experience and approved by manufacturer.

1.05 MOCK-UP

A. See Section 014000 - Quality Requirements, for general requirements for mock-up.

B. Provide panel, 10 feet (3 m) long by 10 feet (3 m) wide, illustrating paint color, texture, and finish.

C. Locate where directed by Architect.

D. Mock-up may remain as part of the work.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Deliver products to site in sealed and labeled containers; inspect to verify acceptability.

B. Container Label: Include manufacturer's name, type of paint, brand name, lot number, brand code, coverage, surface preparation, drying time, cleanup requirements, color designation, and instructions for mixing and reducing.

C. Paint Materials: Store at minimum ambient temperature of 45 degrees F (7 degrees C) and a maximum of 90 degrees F (32 degrees C), in ventilated area, and as required by manufacturer's instructions.

1.07 FIELD CONDITIONS

A. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the paint product manufacturer.

B. Follow manufacturer's recommended procedures for producing best results, including testing of substrates, moisture in substrates, and humidity and temperature limitations.

C. Minimum Application Temperatures for Paints: 50 degrees F (10 degrees C) for interiors unless required otherwise by manufacturer's instructions.

D. Minimum Application Temperature for Varnish Finishes: 65 degrees F (18 degrees C) for interior, unless required otherwise by manufacturer's instructions.

E. Provide lighting level of 80 ft candles (860 lx) measured mid-height at substrate surface.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Provide paints and finishes from the same manufacturer to the greatest extent possible.

1. In the event that a single manufacturer cannot provide specified products, minor exceptions will be permitted provided approval by Architect is obtained using the specified procedures for substitutions.

B. Paints:
   1. Sherwin-Williams Company: www.sherwin-williams.com.
   2. Or Approved Equal.

C. Transparent Finishes:
   1. Sherwin-Williams Company: www.sherwin-williams.com.
   2. Or Approved Equal.

D. Substitutions: See Section 016000 - Product Requirements.

2.02 PAINTS AND FINISHES - GENERAL

A. Paints and Finishes: Ready mixed, unless intended to be a field-catalyzed paint.
   1. Where MPI paint numbers are specified, provide products listed in Master Painters Institute Approved Product List, current edition available at www.paintinfo.com, for specified MPI categories, except as otherwise indicated.
   2. Provide paints and finishes of a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating, with good flow and brushing properties, and capable of drying or curing free of streaks or sags.
   3. Provide materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
   4. For opaque finishes, tint each coat including primer coat and intermediate coats, one-half shade lighter than succeeding coat, with final finish coat as base color.
   5. Supply each paint material in quantity required to complete entire project's work from a single production run.
   6. Do not reduce, thin, or dilute paint or finishes or add materials unless such procedure is specifically described in manufacturer's product instructions.

B. Flammability: Comply with applicable code for surface burning characteristics.

C. Sheens: Provide the sheens specified; where sheen is not specified, sheen will be selected later by Architect from the manufacturer's full line.

D. Colors: As indicated on drawings.
   1. Allow for minimum of three colors for each system, unless otherwise indicated, without additional cost to Owner.
   2. In finished areas, finish pipes, ducts, conduit, and equipment the same color as the wall/ceiling they are mounted on/under.
   3. In utility areas, finish equipment, piping, conduit, and exposed duct work in colors according to the color coding scheme indicated.

2.03 PAINT SYSTEMS - INTERIOR

A. Paint I-OP - Interior Surfaces to be Painted, Unless Otherwise Indicated: Including gypsum board, plaster, shop primed steel, galvanized steel, and aluminum.
   1. Two top coats and one coat primer.
   2. Top Coat(s): Interior Latex; MPI #43, 44, 52, 53, 54, or 114.
      a. Products:
         1) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Flat.
         2) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Semi-Gloss. (MPI #43)
         3) Sherwin-Williams ProMar 200 Zero VOC Interior Latex, Eg-Shel. (MPI #52)
   3. Top Coat Sheen:
      a. Flat: MPI gloss level 1; use this sheen for ceilings and other overhead surfaces.
      b. Satin: MPI gloss level 4; use this sheen at all locations.
      c. Semi-Gloss: MPI gloss level 5; use this sheen at surfaces subject to frequent contact by occupants..
   4. Primer: As recommended by top coat manufacturer for specific substrate.

B. Paint I-TR -W - Transparent Finish on Wood.
   1. 1 top coat over sanding sealer over stain.
   2. Wood Filler:
      a. Products:
         1) Sherwin-Williams Sher-Wood Fast Dry Filler.
   3. Stain: Semi-Transparent Stain for Wood; MPI #90.
   4. Sealer: Acrylic, Sanding Sealer, Clear; MPI #102.
      a. Products:
         1) Sherwin-Williams Sher-Wood Fast Dry Vinyl Sealer..
   5. Top Coat(s): Clear Water Based Varnish; MPI #129.
      a. Products:
         1) Sherwin-Williams Sher-Wood Kem Aqua Plus, Satin.

C. Paint I-TR-FL - Transparent Finish on Wood Floors:
   1. 2 top coats over sealer over filler.
   2. Wood Filler:
      a. Products:
         1) DuraSeal Wood Filler.
   3. Sealer:
      a. Products:
         1) DuraSeal DuraClear Sealer.
   4. Top Coat(s): One component, non-ambering, water-based urethane finish.
      a. Products:
         1) DuraSeal DuraClear Floor Finish.
   5. Top Coat Sheen:
      a. Satin: MPI gloss level 4; use this sheen for flooring.

D. Paint I-TR-C - Transparent Finish on Concrete Floors.
   1. Sealer: Water Based for Concrete Floors; MPI #99.
      a. Products:
         1) Sherwin-Williams H&C Wet Look Sealer (MPI #99).
   2. Sealer Sheen:
      a. Eggshell: MPI gloss level 3; use this sheen at all locations.

E. Paint MI-OP-3L - Ferrous Metals, Unprimed, Latex, 3 Coat:
   1. One coat of latex primer.
   2. Semi-gloss: Two coats of interior latex.

F. Paint MI-OP-2L - Ferrous Metals, Primed, Latex, 2 Coat:
   1. Touch-up with latex primer.
   2. Semi-gloss: Two coats of interior latex.

G. Paint MgI-OP-3L - Galvanized Metals, Latex, 3 Coat:
   1. One coat galvanize primer.
   2. Semi-gloss: Tow coats of interior latex.

H. Paint MaI-OP-3L - Aluminum, Unprimed, Latex, 3 Coat:
   1. One coat etching primer.
   2. Semi-gloss: Two coats of interior latex.

2.04 PRIMERS

A. Primers: Provide the following, or approved equal, unless other primer is required or recommended by manufacturer of top coats.
   1. Interior Institutional Low Odor/VOC Primer Sealer; MPI #149.
      a. Products:
         1) Sherwin-Williams Harmony Interior Latex Primer .
   2. Interior Latex Primer Sealer; MPI #50.
      a. Products:

1) Sherwin-Williams, Pro-Cryl Universal Primer..

3. Interior Rust-Inhibitive Water Based Primer; MPI #107.
   a. Products:
      1) Sherwin Williams Pro-Cryl Universal Primer.
4. Interior Water Based Primer for Galvanized Metal; MPI #134.
   a. Products:
      1) Sherwin-Williams Pro Cryl Universal Primer.

2.05 ACCESSORY MATERIALS

A. Accessory Materials: Provide primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials as required for final completion of painted surfaces.

B. Patching Material: Latex filler.

C. Fastener Head Cover Material: Latex filler.

PART 3 EXECUTION

3.01 PREPARATION

A. Clean surfaces thoroughly and correct defects prior to application.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Remove or repair existing paints or finishes that exhibit surface defects.

D. Remove or mask surface appurtenances, including electrical plates, hardware, light fixture trim, escutcheons, and fittings, prior to preparing surfaces or finishing.

E. Seal surfaces that might cause bleed through or staining of topcoat.

F. Concrete:
   1. Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions.
   2. Prepare surface as recommended by top coat manufacturer and according to SSPC-SP 13.

G. Concrete Floors and Traffic Surfaces: Remove contamination, acid etch, and rinse floors with clear water. Verify required acid-alkali balance is achieved. Allow to dry.

H. Gypsum Board: Fill minor defects with filler compound. Spot prime defects after repair.

I. Plaster: Fill hairline cracks, small holes, and imperfections with latex patching plaster. Make smooth and flush with adjacent surfaces. Wash and neutralize high alkali surfaces.

J. Aluminum: Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

K. Galvanized Surfaces:
   1. Remove surface contamination and oils and wash with solvent according to SSPC-SP 1.

L. Ferrous Metal:
   1. Solvent clean according to SSPC-SP1.
   2. Shop-Primed Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Re-prime entire shop-primed item.
   3. Remove rust, loose mill scale, and other foreign substances using using methods recommended in writing by paint manufacturer and blast cleaning according to SSPC-SP 6 "Commercial Blast Cleaning". Protect from corrosion until coated.

M. Wood Surfaces to Receive Transparent Finish: Wipe off dust and grit prior to sealing, seal knots, pitch streaks, and sappy sections with sealer. Fill nail holes and cracks after sealer has dried; sand lightly between coats. Prime concealed surfaces with gloss varnish reduced 25 percent with thinner.

3.02 APPLICATION

A. Remove unfinished louvers, grilles, covers, and access panels on mechanical and electrical components and paint separately.

B. Apply products in accordance with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual".

C. Where adjacent sealant is to be painted, do not apply finish coats until sealant is applied.

D. Do not apply finishes to surfaces that are not dry. Allow applied coats to dry before next coat is applied.

E. Apply each coat to uniform appearance in thicknesses specified by manufacturer.

F. Dark Colors and Deep Clear Colors: Regardless of number of coats specified, apply as many coats as necessary for complete hide.

G. Sand wood and metal surfaces lightly between coats to achieve required finish.

H. Vacuum clean surfaces of loose particles. Use tack cloth to remove dust and particles just prior to applying next coat.

I. Wood to Receive Transparent Finishes: Tint fillers to match wood. Work fillers into the grain before set. Wipe excess from surface.

J. Reinstall electrical cover plates, hardware, light fixture trim, escutcheons, and fittings removed prior to finishing.

3.03 CLEANING

A. Collect waste material that could constitute a fire hazard, place in closed metal containers, and remove daily from site.

3.04 PROTECTION

A. Protect finishes until completion of project.

B. Touch-up damaged finishes after Substantial Completion.

3.05 SCHEDULE - PAINT SYSTEMS

A. Gypsum Board: Finish surfaces exposed to view.
   1. Interior Ceilings and Bulkheads: I-OP-1, flat.
   2. Interior Walls: I-OP-3, eg-shel.

B. Plaster: Finish surfaces exposed to view.
   1. Interior Walls: I-OP-3, Eg-shel.
   2. Interior Ceilings: I-OP-1, Flat.
   3. Interior grilles, railings, items subject to touch, I-OP-2, Semi-gloss.

C. Woodwork: Finish surfaces exposed to view.
   1. 1. Interior: I-TR-W, satin.

D. Wood Flooring: Finish surfaces exposed to view.
   1. Interior Floors: I-TR-FL, satin.

E. Aluminum: Finish surfaces exposed to view.
   1. Interior: Mal-OP-3L.

F. Galvanized Steel: Finish surfaces exposed to view.
   1. Interior: Mgl-OP-3L.

G. Shop-Primed Metal Items: Finish surfaces exposed to view.
   1. Finish the following items:
      a. Mechanical equipment.
      b. Electrical equipment.
   2. Interior: I-OP-2.

END OF SECTION 099123

SECTION 211313 - FIRE PROTECTION

PART 1 GENERAL

1.1 SCOPE OF WORK

A. Work Included: Provide all material, labor, equipment, design and services necessary to perform the installation of the fire sprinkler system as shown on the drawings and as described herein.

B. Summary of Work: This installation will consist of modifications to the existing sprinkler system in the main entrance lobby and in selected areas outside of the entrance lobby.

C. Design densities shall be in accordance with NFPA 13 and the following:

1. All portions of this system modification are designed for a light hazard density.

D. The water supply to be used in the calculations is 70 psi static, and 68 psi residual with 2123 gpm flowing. A cushion of 10% between all demand points and the water supply is required.

1.2 RELATED SECTIONS

A. This section is subject to all provisions of the Contract including but not limited to Division 0 and Division 1. Specific attention is directed to:

1. Section 20 10 00 - General Mechanical Requirements

1.3 QUALITY ASSURANCE

A. Codes and Standards: This installation shall conform to each of the following:

1. NFPA 13, 2010 Edition, Installation of Sprinkler Systems,
2. International Building Code, 2012 Edition
3. International Fire Code, 2012 Edition
4. International Mechanical Code, 2012 Edition
5. Underwriters Laboratories Fire Protection Equipment Directory, 2016 Edition

B. All work shall comply fully with all applicable codes and standards. Nothing in the contract documents shall be construed to permit non-compliance with any code or standard.

C. Warrantee: The contractor shall guarantee all materials, equipment and workmanship in this installation for a period of one year from the date of completion. Any system failure during that time shall be repaired at the contractor's expense. Contractor shall respond on site to system problems within 24 hours.

D. Qualifications of Contractor: All work shall be performed by a Contractor with a valid Idaho State Contractor's license for the installation of fire sprinkler systems.

E. The field installation shall be supervised at all times by a journeyman sprinkler fitter or person with equivalent experience.

1.4 APPROVALS

A. Authority Having Jurisdiction: For purposes of code compliance the Authority Having Jurisdiction (AHJ) for this installation will be the Idaho State Fire Marshal and the Moscow fire department. Where there are conflicts between the AHJ and the referenced codes and standards, the more stringent shall apply.

1.5 SUBMITTALS

A. Material Submittals: At least 10 working days prior to submitting shop drawings, furnish to the A/E in pdf format a complete list of equipment and products, and a manufacturer's catalog sheet for each item to be included in the project.

B. All material submittals shall include all items listed in the product section of this specification and all additional items necessary to provide a complete installation. Where more than one item appears on a manufacture's catalog sheet, the item or items to be used shall be indicated.

C. Shop Drawings: At least 15 working days prior to any installation or fabrication of the system components, the Contractor shall submit in pdf format shop drawings and hydraulic calculations to the A/E for review by the A/E. The A/E will review the submittals and make any pertinent comments. The contractor will then make any necessary corrections and resubmit for approval.

D. Shop drawings shall conform to, and include all items as set forth in NFPA 13.

E. After approval is received from the A/E, submit shop drawings to the AHJ for approval. Submit evidence of final drawing approval by the AHJ to the A/E prior to the start of fabrication or installation.

1.6 DRAWINGS OF RECORD

A. Updating Drawings: Provide and keep up to date, a complete record set of approved shop drawings, corrected daily to show every change from the approved shop drawings. Keep this set of prints on the job site and use only as a record set. At the conclusion of the project, provide two sets of as-built drawings and two copies of drawings on CD in pdf and AutoCAD format to the A/E for turning over to the owner.

PART 2 PRODUCTS

2.1 GENERAL

A. Materials and Equipment: All materials and equipment in the system shall be new and current products of a manufacturer regularly engaged in the production of such materials and equipment. Where two or more pieces of equipment are required to perform interrelated functions, they shall be products of one manufacturer.

B. Approval Guides: Unless otherwise indicated, all products shall be listed in the latest publication of the Underwriters Laboratory Fire Protection Directory or the Factory Mutual Approval Guide.

2.2 PIPE

A. Schedule of Pipe: All pipe shall be ferrous, and shall meet the requirements of NFPA 13. All threaded pipe shall be schedule 40.

2.3 FITTINGS AND COUPLINGS

A. Threaded Fittings: Threaded fittings shall be cast iron class 125, rated for 175 psi. cold water working pressure and shall conform to ANSI B16.4, ASTM 126 and ANSI B2.1 NPT.

B. Grooved Fittings: 90's, 45's, Tees, and reducers shall be malleable iron or ductile. The fittings shall be by Gustin Bacon, Gruvlok, Victaulic, or approved equal.

C. Grooved Couplings: Grooved couplings and reducers shall be malleable or ductile iron conforming to ASTM A 47.

D. Plain End Couplings: Plain-end couplings are permitted when installed in complete conformance with their listings.

2.4 HANGERS AND SUPPORTS

A. Hangers: Provide hangers to support all piping in perfect alignment without sagging or interference, to permit free expansion and contraction, and meet the requirements of NFPA 13.

B. Pipe Rings: Pipe rings to be zinc coated Afcon figure 69 or equal.

2.5 EARTHQUAKE BRACING

A. Earthquake bracing shall be with a pipe clamp and pipe with a swivel type anchor or similar to those illustrated in NFPA 13. Other types of bracing may be used when UL-listed or FM approved. Any new seismic bracing shall be concealed from view.

2.6 VALVES

A. Drain Valves: Drain valves shall be screw in bonnet bronze globe valves, rated to 175 psi non shock cold water working pressure by Nibco, United or approved equal. Low point drain valves shall have, in addition, a ¾ inch brass nipple with ¾ inch male hose threads and cap.

2.7 SPRINKLERS

A. Provide quick response sprinklers throughout the project area.

B. Pendent sprinklers shall be concealed type with flat cover plate with factory-painted finish. Allow for two custom colors.

C. Sidewall sprinklers shall be concealed type with flat cover with factory-painted finish. Allow for two custom colors. Viking VK 680 or approved equal.

2.8 WALL ESCUTCHEON

A. Provide plastic split ring type escutcheons. Escutcheons are only required where wall penetrations are exposed.

2.9 FIRE ALARM AND RELATED EQUIPMENT

A. Equipment in this section is existing.

2.10 FIRESTOPPING MATERIAL

A. Firestopping material is to be UL classified Bio Fireshield BFS100, 200 caulk or approved equal.

PART 3 EXECUTION

3.1 GENERAL

A. Requirements Prior to Installation: Do not order, fabricate, or install any material prior to receipt of all approvals as stipulated in Part 1 of this Section.

B. The most current architectural backgrounds shall be used to produce shop drawings. Obtain these from the architect prior to starting design.

C. Standards and Requirements: All installation work shall be performed in accordance with the reference standards without exception, and as required by the AHJ. All piping shall be installed straight, true and plumb.

D. Changes to the Work: Install all piping as shown on the approved shop drawings. Minor deviations shall be carefully noted on the record drawings as outlined in Part 1 of this Section. Before making significant deviations from the approved drawings, written approval must be obtained from the Owner and the AHJ.

E. Coordination of Work: Carefully coordinate work with other trades so that unnecessary offsets and revisions to the approved drawings are avoided. Failure to coordinate does not relieve Contractor from meeting the performance standards herein. The contractor is responsible for completely coordinating with all other trades and building conditions, providing all offsets as necessary for a completely coordinated installation. No extras will be allowed for resolving conflicts with other trades.

3.2 SHUTDOWNS

A. All shutdowns shall scheduled with the Owner. Unless otherwise permitted, 7days advanced notice of shutdown is required.

B. Work shall be scheduled and coordinated to minimize shutdowns of the system to areas of the building outside of the work area. Shutdowns of the system in occupied areas exceeding one shift will require a firewatch.

3.3 CUTTING AND PATCHING

A. Coordinate all cutting and patching of existing walls and ceilings with the general contractor. See the architectural manual for requirements of cutting and patching.

3.4 SPRINKLER SPACING

A. Sprinklers shall be spaced in accordance with NFPA 13.

3.5 PENETRATIONS

A. Required Clearance Around Pipe: Piping passing through fire rated assemblies, including fire rated GWB assemblies shall be provided with clearance around the entire circumference of the pipe. Penetrations shall be made in a neat manner using properly sized hole saw or masonry/concrete coring as necessary.

B. Fire Rated Assemblies: The annular spaces around sprinkler pipes which penetrate fire rated assemblies shall be filled with UL classified firestopping material in accordance with the manufacturer's recommendations. Penetrations of all fire-rated assemblies shall be protected. The shop drawings or material submittals shall clearly depict the firestopping assembly proposed by the contractor.

C. Escutcheons: Split wall plates or escutcheons shall be installed where exposed piping or hangers pass through a finished floor, wall or ceiling and shall fit snugly, securely and cover the opening.

3.6 DRAINS

A. Auxiliary Drains: Provide auxiliary drains at all low points of the system, where the trapped section of pipe exceeds five gallons. The drain shall consist of, as a minimum: a valve, a ¾ inch brass nipple with ¾ inch male hose threads, and cap.

3.7 LAY-IN CEILINGS

A. Sprinklers in ceiling tiles shall be located in the center of tile, or at the quarter points in 2 x 4 lay-in ceilings, plus or minus 1 inch. Goosenecks or return bends shall be provided for each pendent sprinkler to facilitate proper positioning of the sprinkler in the ceiling.

3.8 INSPECTION, PUNCH LIST AND HYDROSTATIC TESTS

A. Hydrostatic tests shall be performed in the presence of the AHJ (and Commissioning Authority). Any leaks or drips shall be promptly repaired. Evidence of the completed tests shall be conveyed to the A/E by submitting a completed contractor's Material and Test Certificate.

B. Punch List: Deficiencies found in the installation will be recorded on a punch list and delivered to Contractor. All items on the punch list shall be promptly corrected. Notify the A/E in writing once all punch list items have been corrected.

END OF SECTION

SECTION 260101 - BASIC ELECTRICAL REQUIREMENTS

PART 1 GENERAL

1.1 CONDITIONS AND REQUIREMENTS

A. Refer to instructions to bidders, general conditions, supplementary general conditions, and Division 1 of these specifications that govern work under Division 26. Refer to other sections of these specifications for additional related requirements.

1.2 SCOPE OF WORK

A. The work covered by the Electrical Section (Division 26) of the specifications shall include:
   1. Furnishing all materials and supplying all labor, equipment and services to install the electrical systems as shown on the accompanying drawings and specified herein.
   2. Testing and adjusting of the completed electrical systems in the manner described herein.

1.3 CODES, PERMITS AND FEES

A. Electrical work shall be in complete accordance with the latest revised edition of the following:
   1. National Electrical Code
   2. Uniform Building Code
   3. Uniform Mechanical Code
   4. Uniform Fire Code
   5. Americans with Disabilities Act
   6. Regulations of the State Fire Marshal
   7. Regulations of the State Board of Fire Underwriters
   8. Applicable sections of other State and local codes

B. In case of differences between building codes, state laws, local ordinances, utility company regulations, and Contract Documents, the most stringent shall govern. Promptly notify Owner's Representative in writing of such differences.

C. The Contractor, at their expense, shall obtain permits and inspections required for the electrical work on this project. Inspection certificates shall be included in the Operation and Maintenance Manuals. Deliver copies thereof to the Architect prior to final acceptance of the work.

D. Contractor shall pay all costs levied by utility companies and/or governing agencies associated with electrical service, telephone service, and cable TV service connections and include these costs within their bid. This shall include but not limited to tap fees, service mains, meter and vault charges, etc.

E. Comply with serving utility regulations.

1.4 INTENT AND INTERPRETATIONS

A. It is the intent of these specifications and the accompanying drawings to result in a complete electrical installation in complete accordance with all applicable codes and ordinances.

B. The drawings and specifications are intended to supplement each other and any details contained in one and not the other shall be included as if contained in both. Items not specifically mentioned in the specifications or noted on the drawings, but which are necessary to properly complete the installation of the indicated systems or to render the systems operational, shall be provided, unless specifically excluded.

C. In the event that any discrepancies of any kind exist, or that required items or details have been omitted, the Contractor shall notify the Architect in writing of such discrepancy or omission at least five (5) days prior to bid date. Failure to do so shall be construed as the willingness of the Contractor to supply all necessary materials and labor required for the proper completion of this work.

1.5 DEFINITIONS

A. The term "The Contractor", when used in Division 26 of the specifications, shall be construed to mean the Contractor for the electrical work.

B. The term "Electrical Systems Installer", where used in Division 26 of the specifications, refers to the firm, licensed by the State to perform electrical installation, which is responsible for immediate supervision of electrical work on the project.

C. The word “provide”, where used in this specification and on the accompanying drawings, shall mean furnish and install.

1.6 DRAWINGS

A. The Electrical Drawings shall serve as the working drawings for the electrical work, but the Architectural Drawings shall take precedence over the Electrical Drawings if any dimensional discrepancies exist. The Electrical Systems Installer shall review the plans for the work of the other trades and shall adjust their work to conform to all conditions indicated thereon.

B. Work covered under Division 26 has been indicated on the drawings in locations that should allow installation without interfering with the work of other trades; however, exact finish locations have not been indicated. Therefore, locations of all work and equipment shall be verified to avoid interferences, preserve headroom, provide access for maintenance and keep openings and passageways clear. Changes shall be made in locations of equipment and materials as required to accomplish these purposes without additional claims or charges by the Contractor.

C. The locations of existing concealed lines and connection points have been indicated as closely as possible from available information. The Contractor shall assume that such connection points are within a 10 foot radius of the indicated location. Where connection points are not within this radius, the Contractor shall contact the Architect for a decision before proceeding or may proceed at their own expense.

D. At the beginning of the work, the Contractor shall set aside one complete set of the drawings which shall be maintained as a complete Record Drawings set. The Record Drawings set shall include one set of drawings for the facility conduit plan prepared by this Contractor as described in paragraph 2.4 below. Notations shall be done in a neat and legible manner as specified in Division 01 and in accordance with the Architect’s instructions.
   1. The record drawings shall be updated daily by the foreman to show every change from the original drawings and the exact locations, sizes and kinds of equipment. This set of drawings shall not be used for any other purpose and shall be maintained at the job site and available for review at any time.
   2. Record drawings shall indicate actual size of electrical equipment routing of major raceway systems and location of control devices.
   3. The actual location and elevation of all buried lines, boxes, monuments, stub-outs and other provisions for future connection shall be shown on the record drawings and shall be referenced to the building lines or approved bench marks.
   4. Upon completion of the job, the Contractor shall deliver the record drawings marked-up to the Architect.

E. By the act of submitting a bid, the Contractor shall be deemed to have:
   1. Examined the site and familiarize themselves with the conditions affecting the work. No additional allowance shall be granted because of lack of knowledge of such conditions.
   2. Verify all measurements at the building and acquaint themselves with the existing conditions before submitting their bid proposal.
   3. Examined all architectural, structural, mechanical and other applicable drawings.
   4. Become familiar with the electrical drawings and specifications.
   5. Developed an understanding of the electrical system requirements.
   6. Discussed the project with the Electrical System Installer and determine that he can successfully execute the electrical work.
   7. Accepted such conditions and included allowances for them in their bid.

1.7 ELECTRICAL COST BREAKDOWN

A. The Contractor shall furnish to the Owner’s Representative a breakdown of the electrical construction cost within thirty (30) days of notice to proceed. The breakdown shall be in general conformance with the following:
   1. Bonds, Permits, Fees
   2. Cartage, Rentals, Shack
   3. Supervision
   4. Demolition
   5. Branch Circuit Conduit and Wire
   6. Branch Circuit Labor

7. Devices and Plates
8. Trim Labor
9. Lighting Materials
10. Lighting Labor
11. Lighting Control Materials
12. Lighting Control Labor
13. Equipment Connection Labor
14. Low Voltage Pathway Material
15. Low Voltage Pathway Labor

1.8 TEMPORARY ELECTRICAL SERVICES

A. Refer to Section 01 29 00

1.9 PAYMENT REQUESTS

A. Payment requests for materials and equipment will not be reviewed or approved until shop drawings have been received and approved.

1.10 GUARANTEE

A. The electrical equipment and installation shall be guaranteed for a period of one (1) year from date of acceptance unless an individual item or specification is otherwise noted as longer. The Contractor shall make good at their own expense all defects in their work, and/or equipment furnished by them, which shall develop at any time during the one year guarantee period and shall stand any expense of cutting and patching and repairing made necessary by their corrections of unsatisfactory work or equipment operation.

1.11 ALTERNATES

A. See Section 01 23 00 for a list of alternates to bid for this project. Contractor shall include cost of their bid for complete working electrical system as described in the alternates and shown on the drawings.

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials used under this Contract, unless specifically noted otherwise shall be delivered to the site new, in their original unbroken packages and shall be of the best quality of their respective kind and shall conform to the latest Standard Specifications of the American Society for Testing Materials, National Electrical Manufacturers' Association, National Board of Fire Underwriters or other appropriate agency. Standard items shall bear the stamp indicating listing by Underwriter's Laboratories, Inc. when such listing is available. Custom-designed items shall be fabricated of UL approved materials.

B. Throughout these specifications various materials, equipment, apparatus, etc., are specified by manufacturer, brand name, type or catalog number. Such designations are to establish standards of desired quality and construction and shall be the basis of the bid.

C. Substitutions will be allowed only as herein provided. No substitutions will be permitted without the Architect's written acceptance. Refer to Division 1 of these specifications for additional requirements.
   1. All prior acceptance submittals shall be accompanied by a transmittal letter indicating date, project name, product description/type, and deviations from contract documents if any.
   2. Subject to the Engineer's discretions certain items may be considered for substitution only after samples have been submitted for review.

D. Contractors wishing to bid on equipment other than that listed shall obtain prior acceptance of same. Unless prior acceptance (By Addendum) is issued to all bidders, the Contractor will be held to furnish all items exactly as scheduled and/or specified.

E. Unauthorized product substitution will be removed from the job site and replaced with the specified item at the Contractor's expense.

2.2 EQUIPMENT/MATERIAL SUBSTITUTIONS

A. Throughout these specifications and drawings, various materials, equipment, apparatus, etc., are specified or scheduled by manufacturer, brand name, type or catalog number. Such

designation is to establish standards of desired quality and construction and shall be the basis of design and the bid.

B. Substitutions will not be permitted without written approval

C. Where two or more manufacturer designations are listed in these specifications, choice will be optional with the Contractor except that where more than one manufacturer is listed, and only one manufacturer's catalog number is specified or only one manufacturer scheduled on the drawings (basis of design) that standard of quality, dimensional characteristics, capacities, and construction shall be maintained by materials or equipment supplied by the other manufacturer(s).

D. If the Division 26 Contractor uses manufacturers other than the basis of design, the Contractor shall be responsible for:
   1. Insuring the substituted item will fit the available space while allowing proper maintenance access.
   2. Any changes required by other Contractors caused by the substituted equipment.

E. In the event other than specified equipment is used and will not fit job site conditions, this Contractor assumes responsibility for replacement with items indicated as the basis of design.

F. See specifications Section(s) 26 01 01 for product prior approval requirements.

2.3 OWNER FURNISHED EQUIPMENT AND MATERIALS

A. The Contractor shall accept and become responsible for all Owner furnished equipment and materials. Inspect all equipment and materials to determine suitability for installation. Immediately notify the Owner of any defects or deficiencies. Failure to so notify the Owner shall mean that the Contractor warrants that all equipment and materials are of the proper quantity, design and are free from all defects. Properly store all equipment and materials.

2.4 SUBMITTALS FOR REVIEW

A. Shop Drawings
   1. Refer to Section 01 33 00.
   2. Shop drawings, catalog information and material schedules shall be submitted for approval on all materials and equipment prior to ordering. This applies to all specified material and equipment in Division 26.
   3. Provide specific wiring diagrams for all equipment requiring electrical or control wiring. Upon approval, copies of these diagrams shall be forwarded to pertinent contractors.
   4. Prior to construction, a facility conduit plan shall be submitted for review showing the routing of all conduits and the mounting of the conduits, (e.g. below grade, concealed, surface mounted, etc.), the locations of all junction boxes, and the devices or equipment the conduits where the conduits are terminated. Shop drawing submittal shall be the same size as the contract Shop drawing shall be generated using a computer aided drafting program; as-built drawings shall be delivered to the Architect. CAD floorplans of the contract documents will be provided by the Owner's representative on CD-ROM to the Electrical Contractor in .DWG format only after completion of an "Consent for the Release of Electronic Files" (forwarded by the Owner's representative on request).

B. Furnish complete shop drawing/catalog data for equipment and materials to be used in the work for review. Allow sufficient time for developing shop drawings, processing and review time so that the installation will not be delayed.

C. Shop drawings shall be reviewed, approved and stamped by Contractor prior to submitting to Owner's Representative for approval. Submittals without such approval will be returned without review.

D. Submit data in accordance with Section 01 33 00 and in accordance with this section. Data shall be black and white, on 8½×11 inch or 11×17 inch, single, one-sided sheets suitable for copying. Diagrams and drawings larger than 8½×11inch shall be accordion folded to fit in a three ring binder. Drawings and catalog data must be clean, neat copies. FAX material or other poor quality copies will not be acceptable.

E. Submittals shall be bound in a black 3-ring binder with the project name on the cover. Provide index tabs for each specification section in same order and using same name as appears in the Specifications.

F. Where choices of options and accessories are available or specified, provide written description of what is to be furnished. If necessary, list page numbers where submitted items are described.

G. Underline applicable data.

H. If material or equipment is not as specified or submittal is not complete, it will be rejected. Only complete submittal including all applicable specification sections will be reviewed.

I. Catalog data or shop drawings for equipment that are noted as being reviewed shall not supersede Contract Documents.

J. Review comments shall not relieve Contractor from responsibility for deviations from Contract Documents unless attention has been called to such deviations in writing at time of submission, nor shall they relieve this Contractor from responsibility for errors in items submitted.

K. Check work described by catalog data with Contract Documents for deviations and errors.

L. Submit four (4) copies of each shop drawing. The Engineer will retain one stamped copy, one will be provided to the Architect and a two stamped and reviewed copies will be returned to the Contractor. The Contractor shall be responsible for distribution of required number of reviewed copies to parties other than the Owner's Representative(s).

PART 3 EXECUTION

3.1 GENERAL

A. Workmanship shall be of first quality throughout and shall be in complete accordance with the applicable codes.

3.2 SCHEDULING

A. This Contractor is advised that the work on this project is phased to suit the requirements of the Owner. During construction, it may be necessary to make temporary connections or installations to accommodate the phased nature of the work. Some work may need to be installed and then reinstalled in order to satisfy the operational requirements of the Owner. Power changeover for existing loads shall be made in the smallest possible increments with branch circuit by branch circuit re-connection required wherever possible.
   1. Refer to Specification Section 01 31 00 for additional project scheduling / phasing requirements.

B. The controlling issue governing the work described under Division 26 shall be: DE-ENERGIZING OF ANY FEEDER, SWITCHBOARD, PANEL, BRANCH CIRCUIT OR OTHER EXISTING ELECTRICAL DEVICE OR ITEM SHALL BE AFFECTED ONLY AFTER NOTIFICATION AND SCHEDULING WITH THE OWNER'S PROJECT COORDINATOR.

C. The Contractor shall prepare written proposed schedules for all systems, feeders, panels and branch circuits to be de-energized and submit same to the Owner's Project Coordinator fourteen (14) days in advance of the first schedule item for acceptance. Schedules shall include at least the following:
   1. Specific load to be de-energized
   2. Proposed date and time to be de-energized and re-energized
   3. Backup plan should an emergency occur during the outage period (for critical loads)

D. Schedules proposed by the Contractor are subject to adjustment by the Owner.

E. The Contractor is advised that the above notification and scheduling requirement may necessitate rescheduling, partial completion and re-connection, overtime work at night or on weekends or delay of the work. Contractor costs incurred due to the above shall be included in the original bid price and shall not be the cause for additional claims or charges to the Owner.

3.3 COORDINATION, INSERTS AND OPENINGS

A. This installation requires extensive interfacing. It is the responsibility of the Contractor to clarify any questions or discrepancies with the Architect and to ascertain and verify installation conditions about which he is unsure prior to commencing work. Further, during the entire construction period, coordinate, verify and confirm that related work by other trades is done in a manner that will not complicate or compound the electrical systems work.

B. Locations of devices, outlets, fixtures, equipment, etc. as shown on the drawings are approximate unless dimensioned. Exact locations of such items shall be determined by the

Architect's representative or secured from special details and drawings. The Contractor shall insure that no switches or other electric control devices are mounted such that they are trapped behind opened doors or otherwise rendered inaccessible.

C. Obtain rough-in and connection dimensions as required for power, control and grounding connections to equipment items that require electrical connection.

D. Verify the physical dimensions of each item of electrical equipment to fit the available space and promptly notify the Architect/Engineer prior to roughing-in, if conflicts appear. Coordination of equipment to the available space and to the access routes through the construction shall be the Contractor's responsibility.

E. Provide inserts for hangers, brackets, clamps, etc. as required to support boxes, raceways, cables, fixtures, equipment, etc. Coordinate location and routing to avoid interference with work of other trades. Method of insert placement shall suit the type of construction into which the inserts are to be installed.

F. Furnish and install sleeves and block-outs required for openings in the structure needed to install the electrical work. The responsibility for proper placement of sleeves and block-outs shall be with the Contractor.

G. Openings for electrical work shall be carefully caulked or grouted as required. Spare conduits shall be tightly capped.

H. All roof and exterior wall penetrations shall be flashed and counter-flashed watertight. Caulking shall be equal to General Electric silicone construction sealants.

3.4 CUTTING AND PATCHING

A. Cutting of concrete or other building materials shall be avoided where possible. The Contractor shall have a workman present at the pouring of concrete and at the building of any masonry that contains electrical work.

B. All cutting and patching of new and existing construction required for the installation of systems and equipment specified in Division 26 shall be the responsibility of the Division 26 Contractor. All cutting shall be accomplished with masonry saws, drills or similar equipment to provide neat uniform openings.

C. Patch and repair walls, floors, ceilings, and roof with materials of same quality and appearance as adjacent surfaces unless otherwise shown. Surface finishes shall exactly match existing finishes of same materials. All patching shall meet the approval of the Owner's Representative.

D. All cutting and patching made necessary to repair defective equipment, defective workmanship or by neglect of this Contractor to properly anticipate their requirements shall be included in Division 26.

E. Cut carefully to minimize necessity for repairs to existing work. Do not cut beams, columns, or trusses or other structural members without the Owner Representative's written approval.

F. Cutting, patching, repairing, and replacing pavement, sidewalks, roads, landscaping and curbs to permit installation of work specified or indicated under this Division is responsibility of Division 26.

3.5 PRODUCT DELIVERY, STORAGE AND HANDLING

A. See Section 26 01 01 for additional requirements.

B. Follow manufacturer's directions in delivery, storage, protection, and installation of equipment and materials.

C. Promptly notify Owner's Representative in writing of conflicts between requirements of Contract Documents and manufacturer's directions and obtain written instructions from Owner's Representative before proceeding with work. Contractor shall bear expenses arising from correcting deficiencies of work that do not comply with manufacturer's directions or such written instructions from Owner's Representative.

D. Deliver equipment and material to site and tightly cover and protect against dirt, water, and chemical or mechanical injury but have readily accessible for inspection. Store items subject to moisture damage (such as controls) in a dry, heated space.

E. Notify Owner of equipment delivery dates, twenty-four (24) hours in advance of delivery.

F. The Contractor shall be responsible for protection of equipment furnished in this Division from vandalism and weather during all phases of construction. Damaged equipment shall be restored to like new condition or replaced at the Contractor's expense.

G. Any factory painted equipment scratched or marred during shipment or construction shall be restored to original "new" condition. This includes complete repainting if necessary to provide exact paint match.

3.6 PROTECTION AND CLEANING

A. The Contractor shall provide adequate means for protection and shall fully protect all material and equipment against damage from any causes during the progress of the work and until approval by the Architect.

B. All material and equipment, both when in storage and during construction, shall be covered in such a manner that no finished surfaces will be damaged, marred or splattered with plaster or paint, and all electrical conductors, buses and connections, electronic components and moving parts shall be kept clean and dry.

C. All damaged material or equipment, including face plates of panels and switchboard sections, shall be replaced or refinished by the manufacturer at no additional expense to the Owner.

D. During the progress of the work, the Contractor shall clean up after their workers and shall leave the premises and all portions of the building in which he is working free from their debris.

E. Provide and maintain suitable barriers, protective devices, lights and warning signs where required for protection of the public and employees about the building and site.

3.7 PAINTING

A. All necessary painting shall be included in the Division 26 in order to complete this project. Painting for this project shall include:
   1. All exposed surface mounted conduit and fittings installed under this project shall be painted to match the existing ceiling wall finish.
   2. All existing ceiling / wall surfaces that are damaged during construction shall be patched and painted to match the existing ceiling / wall finish.

B. Where exposed electrical raceways and equipment are to be painted, schedule work to insure that such electrical items are installed prior to painting or that items installed afterward are painted later to match the original finishes.

C. Protect latches on panelboard covers, wiring devices, device faceplates, clocks, and other electrical devices against accidental painting.

D. Protect nameplates and labels on electrical equipment from being obscured by paint.

3.8 VISITING THE PROJECT SITE

A. Examine premises and understand the conditions that may affect performance of work of this Division before submitting proposals for this work.

B. No subsequent allowance for time or money will be considered for any consequence related to failure to examine existing site conditions.

3.9 TESTS

A. See individual specification sections for Testing Requirements.

END OF SECTION

SECTION 260102 - PROJECT FINALIZATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Operation and Maintenance Manual

B. Operation and Maintenance Training/Startup

C. Spare Parts/Maintenance Materials

D. Warranties

E. Final Cleaning

F. Record Drawings

G. Punch List Procedures

H. Maintenance Services

1.2 RELATED SECTIONS

A. Refer to Section 01 77 00 - Contract Closeout

B. Section 26 01 01 - Basic Electrical Requirements

1.3 OPERATION AND MAINTENANCE MANUAL

A. Bind Operation and Maintenance Manual for Electrical Systems in a black three-post, hard-backed binder imprinted lettering with the job title, date, Engineer, Architect and Contractor names.
   1. Provide a master index at the beginning of Manual showing items included. Use plastic index tabs for end section of the Manual.
   2. First section shall consist of name, address, and phone number of Architect, Mechanical and Electrical Engineers, General Contractor, and Electrical Contractors.
   3. Provide a separate section for each section of the specifications. Provide index for each section listing equipment included.

B. Product literature, catalog cuts, etc. shall be clean copies. FAX or other poor quality prints will not be acceptable.

C. Submit one (1) copy of Operation and Maintenance Manual to Owner's Representative for review. After this review and final approval of the manuals, prepare two (2) copies of approved manuals for use during the instruction period. Following instruction period, turn over both copies to the Owner.

D. In general, the following shall be included in the Operation and Maintenance Manual for each electrical equipment item:
   1. List of electrical equipment used indicating name, model, serial number, and name plate data of each item together with number and name associated with each system item as indicated on the drawings.
   2. Manufacturer's maintenance instructions: Instructions shall include name of vendor, installation instructions, parts numbers and lists, operation instructions of equipment, and maintenance and lubrication instructions.
   3. Step-by-step procedure to follow in putting each piece of electrical equipment into operation
   4. Wiring diagram for particular equipment item
   5. Refer to individual specification sections for additional information required to be incorporated into the Operation and Maintenance Manual.

E. Include the following additional items in the O&M Manual:
   1. Summary list of spare equipment parts furnished under this contract
   2. Test Records of feeders, transformers, circuit breakers, telephone/data wiring, etc.
   3. Signed checklist of Instruction Period
   4. Copies of specific product Warranties.
   5. Electrical identification schedules
   6. Copies of manual describing specific maintenance services that will be furnished

1.4 OPERATION AND MAINTENANCE TRAINING/STARTUP

A. Upon completion of the work, the Contractor shall assemble the Electrical Systems Installer and any subcontractors together with factory representatives for system start-up and demonstration. These people shall assist in start-up and check out each system and remain at the site until the total electrical system operation is acceptable and understood by the Owner's designated maintenance and/or operation personnel. The Electrical System Installer or a subcontractor or factory representative designated by them shall also give personal instructions on operation and maintenance of the electrical equipment to the Owner's maintenance and/or operation personnel.

B. Provide a videotape of the training sessions conducted and furnish copies of the tape to the Owner and Engineer. A professional shall tape training sessions to provide a quality video that the Owner can use to train future employees or refresh their operating personnel in the system operation and maintenance. Use VHS format.

C. To prove acceptance of operation and instruction by the Owner's representative, the Contractor shall prepare a written statement of approval detailing it for their signature. The statement shall read as follows:

> "I, the Contractor, together with the Electrical Systems Installer and the associated factory representatives, have started each system and the total electrical system, and have demonstrated their normal operation to the Owner's representative and have instructed them in the operation and maintenance thereof."

Owner's Representative _____ Contractor _____

Electrical System	Demonstrated By/Witnessed By	Instruction Time Allotment	Date
Demonstrate Operation and Instruct Owner in Maintenance of General Electrical System & Motor Controls	/	8.0 hrs	
Written Guarantee Received	/		
O&M Manuals Received	/		
As-Built Drawings Received	/		

1.5 SPARE PARTS/MAINTENANCE MATERIALS

A. Provide summarized list of spare parts that are to be furnished. Incorporate into O&M Manual.

B. Refer to individual specification sections for spare parts to be furnished under this contract.

C. Turn spare parts and materials over to Owner.

1.6 WARRANTIES/GUARANTEES

A. The Contractor shall guarantee all work to be free from defects in material and workmanship for a period of one (1) year. See General Conditions for beginning of guarantee period. The Contractor shall make good at their own expense all defects in their work and/or equipment furnished by them, which shall develop at any time during the one (1) year guarantee period and shall stand any expense of cutting and patching and repairing made necessary to correct unsatisfactory work or equipment operation.

B. Manufacturer's warrantee certificates shall be included in the Operation & Maintenance Manuals for equipment that is warranted by the manufacturer for a period greater than one year.

1.7 CLEAN-UP

A. Clean up all equipment, materials, cartons and other debris that is a direct result of the installation of equipment under this contract.

B. Clean exposed conduits, equipment, and fixtures. Repair damaged finishes and leave everything in working order.

C. Remove stickers from fixtures and electrical equipment.

1.8 RECORD DRAWINGS

A. Record differences between electrical work as installed and as shown in Contract Documents, on a set of prints of electrical drawings to be furnished by Owner's Representative. Return these prints to Owner's Representative at completion of Project. Notations made on drawings shall be neat and legible. These drawings shall not be used for any other purposes.

B. Refer to individual specification sections for additional requirements.

1.9 PUNCH LIST PROCEDURES

A. The Contractor shall notify the Owner's Representative in writing when the project is ready for punch lists. After punch lists are complete, written notice must be forwarded to the Owner's Representative requesting final checkout. Any additional trips by the Engineer to the site for punch list verification that become necessary due to items on previous punch lists that have not been completed at the time of the final checkout will be billed to the Contractor at normal rate plus travel expenses.

B. At the time of punch list and final project checkout, the project foreman shall accompany the Engineer and remove coverplates, panel covers and other access panels to allow complete review of the entire electrical systems.

1.10 MAINTENANCE SERVICES

A. Provide separate manual describing specific maintenance services to be provided as required under specific specification sections.

END OF SECTION

SECTION 260160 - ELECTRICAL DEMOLITION FOR REMODELING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Phased remodel construction in existing occupied buildings

B. Additions to existing occupied buildings

C. Asbestos control within existing buildings

D. Demolition and salvage within existing buildings

1.2 RELATED SECTIONS

A. Reference Section 26 01 01

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

A. Materials and equipment for patching and extending work: As specified in individual Sections.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify field measurements and circuiting arrangements are as shown on drawings.

B. Verify that abandoned wiring and equipment serve only abandoned facilities.

C. Demolition drawings are based on casual field observation and existing record documents. Report discrepancies to the Architect/Engineer before disturbing existing installation.

D. Beginning of demolition means installer accepts existing conditions.

3.2 PREPARATION

A. Coordinate utility service outages with Owner.

B. Provide temporary wiring and connections to maintain existing systems in service during construction. When work must be performed on energized equipment or circuits, use personnel experienced in such operations.

C. Existing Electrical Service: Maintain existing system in service until new system is complete and ready for service. Disable system only to make switchovers and connections. Reference Section 26 01 01 - Scheduling. Make temporary connections to maintain service in areas adjacent to work area.

3.3 DEMOLITION OF EXISTING ELECTRICAL WORK

A. Remove existing electrical equipment including disconnect devices, conduit and wiring, as indicated on the construction drawings. Completely remove such equipment from the site and properly dispose of it, unless specifically instructed otherwise.

B. Remove conduit as required to accommodate work of other trades. Remaining existing branch circuit may be reused to the extent possible.

C. Remove inactive and abandoned raceways except raceways embedded in floors and walls, and raceways completely concealed above ceilings, may remain as long as such materials do not interfere with new installations.

D. Remove inactive and abandoned wire; including disconnected circuits and circuits from which all terminal devices or loads have been eliminated.

E. All openings left in existing construction by removal of existing equipment shall be patched and finished to match existing finishes.

F. If during demolition, existing active services are encountered they shall be relocated as required to accommodate the remodeling. The continuity of said services shall be maintained at all times, except as provided under Section 26 01 01 - Scheduling.

3.4 RELOCATION OF EXISTING EQUIPMENT

A. Relocate existing electrical equipment as indicated on the drawings. Equipment to be relocated shall be serviced and repaired as necessary to place in good working order and to the

satisfaction of the Architect/Engineer. Relocated equipment shall be disconnected and completely reconnected to required services at new location.

B. Cap off and abandon or remove existing services as required where existing equipment is disconnected or removed.

3.5 POTENTIAL ASBESTOS AND LEAD HAZARD

A. Specific attention is directed to the possibility of the existence of asbestos and lead bearing compounds and/or materials at the project site. If any building material is encountered during construction which is suspected of containing asbestos or lead, the contractor must consult with UI EHS to identify the material constituents prior to any disturbance of that material.

3.6 EXISTING UTILITIES AND PIPING

A. The locations of existing concealed lines and connection points have been indicated as closely as possible from available information. The Contractor shall assume that such connection points are within a 10 foot radius of the indicated location. Where connection points are not within this radius, the Contractor shall contact the Owner's Representative for a decision before proceeding or may proceed at their own expense.

B. Connection points to existing work shall be located and verified prior to starting new work.
   1. Prior to commencing any excavation or ditching activity, the Contractor shall verify the exact location and inverts of all existing utilities and connection points in the area of their proposed excavation. Notify Owner's representative for further direction if actual inverts will not allow the proper installation of new work.
   2. The Contractor shall be responsible for damages that might be caused by their failure to exactly locate and preserve underground utilities.

3.7 CUTTING AND PATCHING

A. Reference Section 26 01 01, Paragraph 3.4 : Cutting and Patching

END OF SECTION

SECTION 260519 - BUILDING WIRE AND CABLE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Building wire and cable

B. Service entrance cable

C. Wiring connectors and connections

1.2 RELATED SECTIONS

A. Section 26 05 53 - Electrical Identification

1.3 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association)

B. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association)

C. NFPA 70 - National Electrical Code

1.4 SUBMITTALS FOR REVIEW

A. Product Data: Submit information covering every type of wire or cable to be provided on the project.

1.5 PROJECT CONDITIONS

A. Verify that field measurements are as indicated.

B. Conductor sizes are based on copper unless specifically indicated as aluminum or “AL”.
   1. All new conductors shall be copper, unless specifically noted otherwise.

C. Aluminum conductors shall not be installed unless specifically indicated on the drawings.

D. Wire and cable routing indicated is approximate unless dimensioned.

1.6 COORDINATION

A. Where wire and cable destination is indicated and routing is not shown, determine exact routing and lengths required.

PART 2 PRODUCTS

2.1 BUILDING WIRE

A. Manufacturers: Conductors shall be as manufactured by:
   1. American Insulated
   2. Cerro
   3. Encore
   4. Essex
   5. Houston
   6. Southwire

B. Wire and cable shall be copper single conductor type with 600 volt insulation, unless otherwise indicated.

C. Copper conductors shall be soft drawn, minimum 98 % conductivity.

D. Grounding conductors shall be copper in all cases, no exceptions.

E. #12 and smaller wire shall be solid with type TW, THW or THWN insulation. Larger wire shall be stranded with type THW or THWN insulation.

F. Dedicated neutral conductors shall be installed for all branch circuits. Sharing of neutral conductors shall not be allowed for branch circuits.

G. Outer jackets of conductors shall be color coded as follows:
   1. 120/208 volt circuits.
      a. Phase A-Black
      b. Phase B-Red
      c. Phase C-Blue
      d. Neutral-White

2. 277/480 volt circuits.
    a. Phase A-Brown
    b. Phase B-Orange
    c. Phase C-Yellow
    d. Neutral-White
3. Insulated ground wires-Green.
4. On large conductors, for which color coded jackets are not available, install bands of adhesive non-fading colored tape or slip-on bands of colored plastic tubing over the cables and wires at their terminations and in the vaults, wireways, junction boxes and outlet boxes. In vaults and wireways, install the color coding at each end of the wireway and at approximately 3 foot intervals within the vault or wireway.
5. Materials used for identification shall be colorfast and shall withstand cleaning. Colors used shall be the same as specified for outer jackets.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that mechanical work likely to damage wire and cable has been completed.

C. Verify that raceway installation is complete and supported.

3.2 INSTALLATION IN RACEWAYS

A. Wire and cable shall be run in metal raceways, except where plastic conduit has been specifically approved. Pull all conductors into raceway at same time.

B. Electrical feeder runs are shown schematically. Exact routing shall be determined by the contractor based upon field coordination with building structure and the work of other trades. The actual routing of feeder conduits shall be determined at the site and properly entered on the As-built drawings by the contractor.

C. Branch circuit runs are shown schematically. Except where exact routing is indicated, branch circuit home runs may be grouped and the actual routing of branch circuit conduits may be determined at the site and properly entered on the As-built drawings.

D. Electrical feeders and branch circuits shall be installed in accordance with the National Electrical Code. Provide and install appropriately sized pull boxes and junction boxes for electrical feeders and branch circuits in accordance with National Electrical Code requirements.

E. All branch circuit shall be provided with dedicated neutral conductors. Shared neutral conductors are not allowed.

F. Use solid conductor for feeders and branch circuits 12 AWG and smaller.

G. Use stranded conductors for control circuits.

H. Use conductor not smaller than 12 AWG for power and lighting circuits.

I. Use conductor not smaller than 14 AWG for signal and control circuits, except as indicated.

J. Use 10 AWG conductors for the entire length of the branch circuit for 20 ampere, 120 volt branch circuits longer than 75 feet.

K. Use 10 AWG conductors for all exterior lighting circuits.

L. Use suitable wire pulling lubricant for building wire 4 AWG and larger.

M. Neatly train and lace wiring inside boxes, equipment, and panelboards.

N. Where more than three current carrying conductors are installed in a single raceway, the minimum wire size shall be increased to provide allowable load current of 100 % of the overcurrent device in accordance with National Electrical Code, Table 310-15(b)(2)(a).

O. All splices shall be made in properly sized junction/pull boxes.

P. Service entrance and feeder conductors shall be installed without splices.

Q. Except where sizes are indicated on the drawings, the following schedule shall be adhered to:

Circuit Overcurrent Device Rating	Conductor Sizes
20 amperes or less	#12
25 or 30 amperes	#10
35 or 40 amperes	#8
45 or 50 amperes	#6
60 or 70 amperes	#4
80 or 90 amperes	#2
100 or 110 amperes	#1
125 or 150 amperes	#1/0

R. Where ambient temperatures are within 50 °F of the maximum allowable operating temperatures of the insulation of a conductor, provide conductors with insulation of higher temperature rating suitable for the temperature to be encountered.

S. Identify and color code all wire and cable as specified above. Identify each conductor with its circuit number or other designation indicated.

3.3 WIRING CONNECTIONS AND TERMINATIONS

A. The use of wire nuts is restricted to splices in wire #8 and smaller and shall be made with Scotchlok or approved equal. Splices made in conductors larger than #8 shall be made with Compression type connectors, and provided with heat shrink type insulation which meets or exceeds the existing conductor insulation.

B. Clean conductor surfaces before installing lugs and connectors.

C. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise.

D. Re-tighten all bolt type connections twenty-four (24) to forty-eight (48) hours after installation and before taping. All bolt type connections to bus-bars shall employ spring loaded Belleville washers.

E. All cables shall extend between outlets with complete electrical continuity and without any shorts or grounds. Cables shall be uninterrupted and unspliced.

F. Cables shall be routed so as to maintain a separation of at least 2 feet from all heat sources and from ballasts, transformers, dimmers and all other sources of electromagnetic interference. Avoid cables in areas where they may be damaged as a result of normal use of the area.

G. Cable run in suspended ceiling cavities shall not lie upon the ceiling or be supported from ceiling suspension wires or from conduits or pipes, but shall be suspended from the building structural elements using cable ties.

H. Care shall be exercised during installation not to damage the cable insulation. Damaged cables shall be removed and replaced.

I. Stranded conductors shall not be connected directly to wiring devices. Where such connections are to be made, insulated solid copper wire “tails” shall be spliced to the stranded conductors in the outlet box.

END OF SECTION

SECTION 260520 - EQUIPMENT WIRING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Electrical connections to equipment

B. Mechanical control revisions to existing equipment

1.2 RELATED SECTIONS

A. Section 26 05 19 - Building Wire and Cable

B. Section 26 05 30 - Conduit

C. Section 26 05 32 - Boxes

1.3 REFERENCES

A. NEMA WD 1 - General Purpose Wiring Devices

B. NEMA WD 6 - Wiring Devices - Dimensional Requirements

C. NFPA 70 - National Electrical Code

1.4 SUBMITTALS FOR REVIEW

A. Product Data: Provide wiring device manufacturer's catalog information showing dimensions, configurations, and construction.

1.5 REGULATORY REQUIREMENTS

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

1.6 COORDINATION

A. Obtain and review shop drawings, product data, manufacturer's wiring diagrams, and manufacturer's instructions for equipment furnished under other sections.

B. Determine connection locations and requirements.

C. Sequence rough-in of electrical connections to coordinate with installation of equipment.

D. Sequence electrical connections to coordinate with start-up of equipment.

PART 2 PRODUCTS

2.1 CORDS AND CAPS

A. Manufacturers: Leviton, Bryant, Hubbell, Pass & Seymour, and Arrow-Hart.

B. Attachment Plug Construction: Conform to NEMA WD 1.

C. Configuration: NEMA WD 6, UL 498, heavy duty nylon construction with external cord clamp and dead-front construction, with rating and NEMA configuration molded on the device. Match receptacle configuration at outlet provided for equipment.

D. Cord Construction: NFPA 70, Type SO multi-conductor flexible cord with identified equipment grounding conductor, suitable for use in damp locations.

E. Size: Suitable for connected load of equipment, length of cord, and rating of branch circuit overcurrent protection.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that equipment is ready for electrical connection, wiring, and energization.

3.2 ELECTRICAL CONNECTIONS

A. Make electrical connections in accordance with equipment manufacturer's instructions.

B. Make conduit connections to equipment using flexible conduit. Use liquidtight flexible conduit with watertight connectors in damp or wet locations.

C. Connect heat producing equipment using wire and cable with insulation suitable for temperatures encountered.

D. Provide receptacle outlet to accommodate connection with attachment plug.

E. Provide cord and cap where field-supplied attachment plug is required.

F. Install suitable strain-relief clamps and fittings for cord connections at outlet boxes and equipment connection boxes.

G. Install disconnect switches, controllers, control stations, and control devices to complete equipment wiring requirements.

H. Install terminal block jumpers to complete equipment wiring requirements.

I. Install interconnecting conduit and wiring between devices and equipment to complete equipment wiring requirements.

J. Provide final connection of all equipment items as scheduled. Coordinate work with the equipment supplier/installer.

K. Obtain dimensioned shop drawings from the equipment suppliers prior to rough-in of branch circuits.

L. Where equipment requires a cord connection, install a new cord and cap if the one furnished does not match the receptacle provided.

M. Circuit breaker, feeder and fuse sizes shall be coordinated with the nameplate data on the equipment actually furnished.

END OF SECTION

SECTION 260526 - GROUNDING AND BONDING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Grounding electrodes and conductors

B. Equipment grounding conductors

C. Bonding

1.2 REFERENCES

A. NETA ATS - Acceptance Testing Specifications for Electrical Power Distribution Equipment and Systems (International Electrical Testing Association)

B. NFPA 70 - National Electrical Code

1.3 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 25 ohms

1.4 SUBMITTALS FOR REVIEW

A. Submit under provisions of Section 26 01 01.

B. Product Data: Provide data for grounding electrodes and connections, installation details, dimensioned plan view drawings of the buildings showing the grounding system, and criteria for system test and acceptance. As a minimum, said drawings shall show the type and location of all conductors, fasteners, splices and connectors, and all ground terminals. Submittal shall include design criteria and calculations for any deviations from these specifications.

1.5 PROJECT FINALIZATION

A. Submit under provisions of Section 26 01 02.

B. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

C. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with the manufacturer

1.6 OPERATION AND MAINTENANCE DATA

A. Section 01 77 00 - Contract Closeout: 01 78 23 - Operation and Maintenance Data

B. Project Record Documents: Record actual locations of components and grounding electrodes.

C. Certificate of Compliance: Indicate approval of installation by authority having jurisdiction.

1.7 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Product: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 WIRE

A. Material: Stranded copper

B. System grounding electrode conductors and bonding conductors shall be stranded single conductors, with 600 volt insulation, sized to meet NFPA 70 requirements, as manufactured by General Cable, Rome, Southwire or Triangle.

PART 3 EXECUTION

3.1 GENERAL

A. Grounding conductors shall be copper in all cases - no exceptions.

3.2 DISTRIBUTION GROUNDING

A. Where a conduit enters a painted sheet metal enclosure, the paint shall be cleaned from the area around the locknut to allow metal-to-metal contact or a grounding locknut shall be used.

B. Provide a redundant equipment grounding conductor together with each feeder run in addition to the conduit system grounding path.

C. Provide a redundant equipment grounding conductor, in addition to the conduit system ground path and in addition to the phase and neutral conductors shown on the plans, in each branch circuit conduit which supplies receptacles, lights or fixed electrical equipment. An additional isolated ground conductor shall be provided where so indicated on the drawings.

D. Connect the ground terminal on each receptacle to the metallic raceway system with a bonding jumper, except in the case of surge-suppression or isolated-ground type receptacles. The ground terminal of surge-suppression or isolated-ground type receptacles shall be connected to an insulated equipment grounding conductor run with the branch circuit conductors, but isolated from the conduit system except at the panelboard, where it shall be connected to the panelboard ground bus. Maintain continuity of the ground to every outlet in the system.

3.3 DOCUMENTATION

A. At the completion of the project, drawings and photographs shall be updated to as-built status and incorporated in the project Operation and Maintenance Manuals.

3.4 TESTING

A. After installation, the grounding electrode systems shall be tested for system conductivity and ground terminal resistance-to-earth.

B. Tests shall be conducted using three-point Vibraground test equipment in accordance with applicable standards.

C. The test report shall be included in the Operation and Maintenance Manual.

END OF SECTION

SECTION 260530 - CONDUIT

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Metal conduit

B. PVC coated metal conduit

C. Flexible metal conduit

D. Liquidtight flexible metal conduit

E. Electrical metallic tubing

F. Rigid plastic conduit

G. Fittings and conduit bodies

1.2 RELATED SECTIONS

A. Section 26 05 26 - Grounding and Bonding

B. Section 26 05 32 – Boxes

C. Section 26 05 53 - Electrical Identification

D. Section 26 27 27 - Supporting Devices

1.3 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated

C. ANSI C80.5 - Rigid Aluminum Conduit

D. ANSI/NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit and Cable Assemblies

E. ANSI/NFPA 70 - National Electrical Code

F. NECA “Standard of Installation”

G. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally Coated Galvanized Rigid Steel Conduit and Intermediate Metal Conduit

H. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing

1.4 DESIGN REQUIREMENTS

A. Conduit Size: ANSI/NFPA 70

1.5 SUBMITTALS

A. Product Data: Provide data for metallic conduit, flexible metal conduit, liquidtight flexible metal conduit, metallic tubing, nonmetallic conduit, flexible nonmetallic conduit, nonmetallic tubing, fittings, conduit bodies, and fire sealants.

B. Shop drawing submittal shall be the same size as the contract documents and shall show the floorplan scaled at 1/8 inch = 1 foot.

1.6 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Section 01 78 39.

B. Accurately record actual routing of conduits larger than 1 inch.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, protect, and handle Products to site under provisions of Section 26 01 01.

B. Accept conduit on site. Inspect for damage.

C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

D. Protect PVC conduit from sunlight.

1.8 PROJECT CONDITIONS

A. Verify that field measurements are as shown on drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete the wiring system.

PART 2 PRODUCTS

2.1 METAL CONDUIT

A. Manufacturers: Allied Tube and Conduit, LTV, Triangle PWC, Western Tube and Conduit, or equal

B. Rigid Steel Conduit: ANSI C80.1

C. Rigid Aluminum Conduit: ANSI C80.5

D. Intermediate Metal Conduit (IMC): Rigid steel

E. Fittings and Conduit Bodies: ANSI/NEMA FB 1; Threaded galvanized or cadmium plated steel fittings. Bushings shall have nylon insulated throats

2.2 PVC COATED METAL CONDUIT

A. Manufacturers: Rob Roy Industries, or equal

B. Description: NEMA RN 1; rigid steel conduit with external PVC coating, 20 mil thick

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; Threaded galvanized or cadmium plated steel fittings. Bushings shall have nylon-insulated throats. All steel fittings shall have an external PVC coating to match conduit.

2.3 FLEXIBLE METAL CONDUIT

A. Manufacturers: AFC, Anamet, Triangle PWC, or equal

B. Description: Interlocked, galvanized steel construction

C. Fittings: ANSI/NEMA FB 1: Specifically designed for the purpose

2.4 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Manufacturers: AFC, Anamet, Electriflex, Alflex, or equal

B. Description: Interlocked, galvanized steel construction with PVC jacket.

C. Fittings: ANSI/NEMA FB 1: Specifically designed for the purpose

2.5 ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers: Allied Tube and Conduit, LTV, Triangle PWC, or equal

B. Description: ANSI C80.3; galvanized tubing

C. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel, set screw type with nylon insulated throats on connectors

2.6 RIGID PLASTIC CONDUIT

A. Manufacturers: Carlon, PW Pipe, Triangle PWC, or equal

B. Description: NEMA TC 2; Schedule 40 PVC

C. Fittings and Conduit Bodies: NEMA TC 3

2.7 CONDUIT WITH INNERDUCTS

A. Manufacturers: Carlon, Optic-Gard/PE, No 13109, or approved equal

B. Description: NEMA TC 2

C. Fittings and Conduit Bodies: NEMA TC 3

PART 3 EXECUTION

3.1 INSTALLATION

A. Minimum conduit size shall be ¾”.

B. Primary service and secondary service entrance conduit types shall be any combination of the following:

1. Rigid metal conduit for exposed, concealed, underground or underslab runs.

2. Rigid nonmetallic conduit with a separate ground wire for underground, or underslab on grade, runs.

C. Feeder conduit types shall be as follows:
   1. Rigid metal conduit for exposed, underground or underslab runs.
   2. Intermediate metal conduit in walls, above ceilings, in poured concrete or in masonry, except for runs in hazardous locations.
   3. Electrical metallic tubing with separate ground wire in non-masonry/concrete walls, above ceilings, and where exposed in non-hazardous locations.
   4. Rigid nonmetallic conduit with a separate ground wire for underground or under slab on grade runs, except runs in hazardous locations.

D. Branch circuit conduit types shall be as follows:
   1. Rigid metal conduit for exposed runs up to 4 feet 6 inches above the finished floor in sheltered spaces, for all exposed runs subject to the weather, for runs in hazardous locations and for underground or underslab runs.
   2. Intermediate metal conduit in walls, above ceilings, in poured concrete or in masonry, except runs in hazardous locations.
   3. Electrical metallic tubing in non-masonry/concrete walls or above ceilings, and for exposed runs in non-hazardous locations.
   4. Liquid-tight flexible steel conduit for connections to transformers, motors and other vibrating equipment in damp and wet areas or where exposed to the weather.
   5. Flexible steel conduit for connections to transformers, motors and other vibrating equipment in dry, sheltered areas.
   6. Rigid nonmetallic conduit with a separate ground wire for underground or under slab on grade runs.

E. Conduits shall be sized in accordance with the applicable codes except where larger conduits are called for on drawings. Sizes shown on the drawings are based on the use of rigid metal conduit and copper conductors with THW insulation unless noted otherwise.

F. Do not install conduit in poured concrete or masonry walls or slabs without the Architect's approval.

G. All conduit penetrations of structural elements or conduits run within masonry walls or slabs shall be approved by the Architect in advance of installation.

H. Conduits run in masonry shall be placed at least 1 inch from the surface. Care shall be taken to avoid placing conduits where they will be subjected to excessive heat.

I. Conduit ends shall be capped using standard capped bushings or steel "pennies" and bushings to prevent entrance of foreign materials during construction.

J. Rigid conduit and IMC shall be reamed after threads are cut. Joints shall be cut square and shall butt solidly into couplings. Running threads will not be permitted. Cut ends of EMT shall also be reamed.

K. Bends in rigid conduit, IMC and EMT runs larger than 1¼ inch shall be of factory-made elbows unless otherwise specifically approved. Bends in 1¼ inch and 1 inch runs shall be made in an approved bending machine (or factory made). Hickey bends will not be permitted in conduits larger than ¾ inch. Bends shall not show flattening.

L. The radius of the inner edge curve of any field bend shall not be less than indicated in the following table:

Conduit Size (inches)	Inside Radius (inches)
½	4
¾	5
1	6
1¼	8
1½	10
2	12
2½	15

Conduit Size (inches)	Inside Radius (inches)
3	18
3½	21
4	24

M. Where conduit runs are 100 feet or longer or contain the equivalent of four (4) 90 degrees bends, pull/junction boxes shall be provided. Pull box locations shall be indicated on the as-built drawings.

N. Provide a #12 AWG copper pull wire or a polyethylene pull rope rated at 250 pounds (minimum) tensile strength in each conduit left empty for future use.

O. Conduits containing innerducts shall consist of a four inch PVC Schedule 40 outer conduit (underground) or RGS (above ground or indoors), with three 1¼ inch ribbed polyethylene innerducts. Install all innerducts at once without crushing or kinking.

P. Ground and bond conduit under provisions of Section 26 05 26.

Q. Identify conduit under provisions of Section 26 05 53.

R. Branch circuit runs are shown schematically. Except where exact routing is indicated, branch circuit home runs may be grouped and the actual routing of branch circuit conduits may be determined at the site and properly entered on the As-built drawings.

3.2 RACEWAY INSTALLATION - SPECIAL ABOVE-GROUND REQUIREMENTS

A. Conduits shall be concealed in the building construction to the fullest extent possible except in electrical rooms, mechanical rooms and where exposed runs are indicated or cannot be avoided. Exposed conduits shall be run parallel to walls and ceilings and at the ceiling wherever possible.

B. Conduits, whether exposed or concealed, shall be securely supported and fastened at intervals of nominally every 10 feet and within 36 inches of each outlet, ell, fitting, panel, etc. Suspended conduits shall be supported by metal rings or by trapeze hangers of Unistrut or Kindorf channel and threaded steel rods. Multiple runs of conduit on ceilings and walls shall be mounted on Unistrut or Kindorf channel. Perforated plumber's tape shall not be used. Single runs of exposed conduit shall be supported with steel pipe straps. Conduit shall not be supported from ducts, plumbing or other piping or from other conduits but only from building structural elements. Reference additional conduit support requirements under provisions of Section 26 27 27.

C. Provide suitable fittings to accommodate expansion and deflection where conduit crosses seismic, control and expansion joints, or wherever conduit may be affected by dissimilar movements of the supporting structure.

D. Where conduit is exposed to the weather or in wet locations, make joints liquid and gastight. Ends of all such conduits shall be sealed after conductors.

E. Keep conduit at least 6 inches from hot water or steam pipes and at least 18 inches from the covering on flues and the like.

F. Do not cut, notch or drill structural framing members for the installation of conduit without the Architect's advance approval in each case.

G. Rigid steel conduit shall be used at roof penetrations. Where conduits pass through the roof, provide channel supports below the roof spanning the structural elements of the roof and braced to the building structure in at least two (2) directions at right angles to one another. The conduit penetrating the roof shall be secured to the supports at two (2) points below the roof as required to render the portion above the roof rigid.

H. Where flexible metal conduit is used for equipment connections or other special (approved) situations, provide a continuous copper ground conductor sized in accordance with the applicable codes. Liquidtight flexible metal conduit shall be used for all equipment connections in damp and wet areas. Flexible conduit used for connections to vibrating equipment shall be approximately 3 feet long and contain one (1) 90 degree bend.

I. Install conduits so that there is a minimum of 12 inches of clearance between bottom of conduit and top of removable ceiling tiles.

3.3 SLEEVES

A. Provide sleeves of sufficient size to permit ready installation of each conduit which passes through concrete walls or suspended slabs. Sleeves in concrete beams, joists, columns or footing walls may be installed only where permitted by the Architect.

B. For conduit that passes through suspended concrete slabs, place sleeves with the top one inch above finished slab and the bottom flush with underside of slab. In all other cases, place sleeves with the ends flush with the concrete surfaces. Space sleeves at least three diameters apart on center or more if required by the Architect.

C. Where conduits pass through fire resistive walls, ceilings or floors, sleeves shall be packed with fire resistive compound equal to 3M Fire Barrier.

D. Penetrations through fire rated floors, ceilings and walls shall be sealed using an approved fire barrier sealant. Fire barrier sealants shall be a UL Rated material classified for use in through-penetration fire stop systems, and shall have ICBO, BOCAI, and SBCCI (NRB 243) approved rating per ASTM-814 (UL 1479). The sealant shall be equal to 3M CP-25 caulk, FS 195 strips and CS 195 sheet forms or an approved equal. Acceptable manufacturers are STI, 3M, Pensil, Hilti, Dow, Fyre Putty, Hevi-Duty and Nelson.
   1. Where sleeves penetrate existing fire resistive concrete walls or floors, the annular space around the sleeve shall be filled with fire resistive intumescent compound equal to STI “Spec Seal” firestop sealant as manufactured by Specified Technologies, Inc., Somerville, New Jersey. If the annular space exceeds ¾ inch, it shall be filled instead with fire resistive grout equal to STI “Spec Seal” firestop mortar.
   2. Where sleeves penetrate fire resistive sheetrock walls or ceilings or where they penetrate fire resistive suspended ceilings, the annular space around the sleeve shall be filled with fire resistive intumescent compound equal to STI “Spec Seal” firestop sealant.
   3. Where sleeves pass through fire resistive walls, ceilings or floors, sleeves shall be packed with fire resistive intumescent compound equal to STI “Spec Seal” firestop putty.
   4. A manufacturer’s supplied installation detail shall be submitted for each type of assembly with the UL approval and limitations indicated.

END OF SECTION

SECTION 260531 - SURFACE RACEWAYS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Surface metal raceways

B. Multi-outlet assemblies

1.2 RELATED SECTIONS

A. Section 26 05 26 - Grounding and Bonding

B. Section 26 27 26 - Wiring Devices: Receptacles

C. Section 26 27 27 - Supporting Devices

D. Section 27 05 28 - Telephone Service, Pathways, and Wiring

1.3 REFERENCES

A. National Electrical Code Article 362 - Wireways, Article 374 - Auxiliary Gutters

B. National Electrical Contractor's Association (NECA) Standard of Installation

C. NEMA WD 6 - Wiring Device Configurations

D. Underwriters Laboratories (UL) Standard of Safety 870 - Wireways, Auxiliary gutters and Associated Fittings

1.4 SUBMITTALS

A. Product Data: Provide dimensions, knockout sizes and locations, materials, fabrication details, finishes, and accessories.

1.5 REGULATORY REQUIREMENTS

A. Furnish products listed and classified by Underwriters Laboratories, Inc. or other testing firm acceptable to authority having jurisdiction as suitable for purpose specified and shown.

PART 2 PRODUCTS

2.1 SURFACE METAL RACEWAY

A. Manufacturers: Wiremold, or approved equal

B. Description: Sheet metal channel with fitted cover, suitable for use as surface metal raceway.

C. Size: As shown on drawings. If not shown, raceway shall be Wiremold #V700.

D. Finish: As selected by Architect.

E. Fittings, Boxes, and Extension Rings: Furnish manufacturer's standard accessories.

2.2 MULTI OUTLET ASSEMBLY

A. Manufacturers: Wiremold, or approved equal

B. Multi outlet Assembly: Sheet metal channel with fitted cover, with pre-wired receptacles, suitable for use as multi outlet assembly.

C. Size: As indicated on drawings. If not shown, raceway shall be Wiremold #V2400. Where isolated ground receptacles are indicated on the drawings, raceway shall be Wiremold #G3000. Where receptacles and data/telephone outlets are indicated on the drawings, raceways shall be Wiremold #V4000 with internal divider.

D. Receptacles: NEMA WD 6, type 5-15R, single receptacle, unless indicated otherwise.

E. Receptacle Spacing: As indicated on drawings.

F. Channel Finish: As selected by Architect.

G. Fittings: Furnish manufacturer's standard couplings, elbows, outlet and device boxes, and connectors.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install Products in accordance with manufacturer's instructions.

B. Use flat-head screws, clips, and straps to fasten raceway channel to surfaces. Mount plumb and level.

C. Use suitable insulating bushings and inserts at connections to outlets and corner fittings.

D. Wireway Supports: Provide steel channel as specified in Section 26 27 27.

E. Close ends of wireway and unused conduit openings.

F. Ground and bond raceway and wireway under provisions of Section 26 05 26.

END OF SECTION

SECTION 260532 - BOXES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall and ceiling outlet boxes

B. Pull and junction boxes

1.2 RELATED SECTIONS

A. Section 26 05 30 - Conduit

B. Section 26 27 16 - Cabinets and Enclosures

C. Section 26 27 26 - Wiring Devices

1.3 REFERENCES

A. NECA - Standard of Installation

B. NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies

C. NEMA OS 1 - Sheet-steel Outlet Boxes, Device Boxes, Covers, and Box Supports

D. NEMA OS 2 - Non-metallic Outlet Boxes, Device Boxes, Covers and Box Supports

E. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum)

F. NFPA 70 - National Electrical Code

1.4 SUBMITTALS

A. Product Data: Provide data for wall and ceiling outlet boxes, floor boxes, pull, and unction boxes.

B. Record actual locations and mounting heights of outlet, pull, and junction boxes on project record documents.

1.5 REGULATORY REQUIREMENTS

A. Provide Products listed and classified by Underwriters Laboratories, Inc., as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 OUTLET BOXES

A. Manufacturers: Appleton, Crouse Hinds, Killark, O Z Gedney, Raco/Bell, Steel City, or equal.

B. Boxes shall accommodate the devices to be installed and shall be sized as required by the applicable codes for number and size of conduits and conductors entering and leaving. Round or octagon boxes will not be permitted unless specifically called for. Boxes shall have galvanized finish.

C. Boxes shall be of code gauge steel and provided with plaster, tile or other appropriate device rings.

D. Outlet boxes and device boxes mounted in non-masonry walls shall be minimum 4 inches square by 1½ inches deep exclusive of rings and shall be provided with covers or device rings as specified. Boxes for wall switches and data/telephone outlets shall be minimum 2 1/8 inches deep exclusive of rings. Boxes for data/telephone outlets shall be minimum 4 11/16 inches square by 2 1/8 inches deep exclusive of rings.

E. Outlet boxes, telephone/data boxes, and device boxes mounted in masonry walls shall be double gang masonry boxes with a minimum depth of 2½ inches for 4 inch masonry walls and 3½ inches for 6 inch or 8 inch masonry walls (exclusive of rings).

F. Weatherproof boxes shall be non-rusting cast metal with threaded hubs. Boxes shall have screw mounted, gasketed covers. Plugs shall be installed in all unused holes.

G. Boxes installed in masonry walls shall have tile covers.

2.2 PULL AND JUNCTION BOXES

A. Manufacturers: Circle AW, Hoffman, Rittal, or equal

B. Special oversized outlet boxes and junction boxes shall be code gauge steel and of the knockout type. Boxes shall have screw mounted covers for surface or flush mounting. Boxes shall be

sized in accordance with applicable codes. Special outlet boxes shall accommodate the equipment served.

C. In damp or wet locations sheet metal pull boxes shall be hot dipped galvanized after fabrication then finish painted with two coats of rust-resistant paint. Use covers with neoprene gaskets affixed with stainless steel screws. Seal around conduit entries with silicone based sealant.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify exact locations of floor boxes and outlets prior to rough-in.

3.2 GENERAL INSTALLATION

A. Install boxes in accordance with NECA “Standard of Installation.”

B. Install in locations as shown on drawings, and as required for splices, taps, wire pulling, equipment connections and compliance with regulatory requirements.

C. Electrical boxes are shown on drawings in approximate locations unless dimensioned. Adjust box location up to 10 feet if required to accommodate intended purpose.

D. Boxes shall be supported independently of the conduit system. Do not fasten boxes to ceiling support wires.

E. Where boxes occur in pre-cast concrete construction, the Contractor shall coordinate said installation with the Contractor building the precast construction to produce shop drawings showing all box locations. Provisions shall be made for conduit entry from top or bottom of wall panels. All conduit and boxes shall be installed concealed and flush respectively. These requirements shall be met whether the precast work is done at the site or a location remote from the site.

F. All boxes shall be plumb. Supports shall be noncombustible and corrosion resistant. In suspended ceilings, bar hangers shall be used to support the boxes from the ceiling channels. Refer to architectural drawings for exact heights of outlets not specified herein or indicated on the drawings. Unused knockouts in boxes shall be left sealed.

G. Do not mount control or disconnecting devices more than 6 feet 6 inches above finish floor.

H. Do not locate cabinets, outlets or other apertures larger than 16 square inches in rated fire walls.

I. Prior to installation, the Owner reserves the right to relocate any outlet or device within 6 feet of the location indicated on the plans at no additional cost.

J. Where rigid conduit or IMC enters a box, fitting or device through a knockout, double locknuts and an insulated metallic bushing shall be used. EMT shall terminate at knockouts with an insulated throat fitting and one locknut. Connectors shall be made up tight to insure electrical continuity of the raceway system.

K. Provide all necessary supports and backing for all enclosures and equipment.

L. Attach boxes, outlets, straps, cabinets and equipment to wood with wood or lag screws, to metal with machine screws or bolts, and to concrete with expansion anchors or self-drilling metal anchors and machine screws or bolts. Use size and number of attachments as required to support equipment weight with a safety factor of four (4) minimum.

M. Provide access doors where boxes are not exposed or located within an accessible ceiling unless indicated to be provided under other Divisions. Access doors shall comply with Section 08305.

3.3 OUTLET BOX INSTALLATION

A. Each lighting outlet, switch, receptacle and other miscellaneous device shall be provided with a suitable box.

B. Align adjacent wall mounted outlet boxes for receptacles, data/telephone outlets, and similar devices.

C. Use flush mounting outlet box in finished areas.

D. Locate flush mounting box in masonry wall to require cutting of masonry unit corner only. Coordinate masonry cutting to achieve neat opening.

E. Outlet boxes installed in masonry walls shall be set deep enough to allow a masonry facing over the plaster ring to frame the opening. Center outlet in a course of masonry. Masonry boxes shall be mounted as follows:
   1. From floor to height of 6 feet, mount so that bottom of box rests on block joint.
   2. Above 6 feet, mount so that top of box rests on block joint.

F. Do not install flush mounting box back-to-back in walls; provide minimum or 6 inches separation. Provide minimum or 24 inches separation in fire-rated assemblies and acoustic rated walls.

G. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness.

H. Use stamped steel bridges to fasten flush mounting outlet box between studs.

I. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

J. Use adjustable steel channel fasteners for hung ceiling outlet box.

K. Use cast outlet box in exterior locations, where exposed to the weather and wet locations.

L. Where two or more of the same type devices occur adjacent to each other, they shall be in a gang type box with a gang type cover. Where different type devices occur adjacent to each other, space outlet boxes so that finish plates will be spaced 1 inch apart. Where receptacles or switches are shown side by side but at different heights, they shall be centered one above the other unless noted otherwise.

M. Unless otherwise indicated, switch boxes shall be mounted with bottom at 48 inches, over counter convenience outlet boxes shall be centered 8 inches above the counter top or higher as required to clear the backsplash, desk height outlet boxes shall be mounted with bottom at 32 inches and other convenience outlets shall be mounted with bottom at 16 inches above the finished floor. Coordinate outlet locations and provide box extensions or other equipment as required where outlets occur in cabinet backs.

N. Outlets in acoustical ceilings are to be in the center of the acoustical tile or in the center of a joint in the acoustical tile.

O. Align all outlets horizontally or vertically for a uniform and neat appearance.

3.4 PULL AND JUNCTION BOX INSTALLATION

A. Pull boxes and junction boxes shall be provided as indicated on the drawings and/or as required.

B. Boxes larger than 200 cubic inches or 18 inches in any dimension shall use a hinged enclosure in interior dry locations, surface-mounted cast metal box in other locations.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

3.5 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused box openings.

END OF SECTION

SECTION 260553 - ELECTRICAL IDENTIFICATION

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Nameplates

B. Wire and Cable Markers

C. Underground Conduit Markers

D. Pull and Junction Box Identification

E. Device Plate Identification

1.2 RELATED SECTIONS

A. Section 26 27 26 - Wiring Devices

PART 2 PRODUCTS

2.1 NAMEPLATES

A. Nameplates shall be laminated phenolic plastic, black front and back with white core, with lettering etched through the outer covering, except where other colors are a code requirement (e.g., service entrance main disconnects). White engraved letters on black background shall be 3/16 inch high at push-button stations, thermal overload switches, receptacles, wall switches and similar devices, where the nameplate is attached to the device plate. All other locations, lettering shall be ½ inch high. Nameplates shall be securely fastened to the equipment with No. 4 Phillips, round-head, cadmium-plated, steel self-tapping screws or nickel-plated brass bolts. Engraving directly on stainless steel device plates is acceptable. Nameplates shall describe the function or use of the item.

2.2 WIRE AND CABLE MARKERS

A. Manufacturers: W. H. Brady Co, Seton, Tyton.

B. Markers shall be cloth tape, split sleeve, or tubing type.

PART 3 EXECUTION

3.1 PREPARATION

A. Degrease and clean surfaces to receive identification materials.

3.2 NAMEPLATE INSTALLATION

A. The following items shall be equipped with nameplates:
   1. Motor starters, motor control switches, pushbutton stations, control panels and time switches.
   2. Disconnect switches, panelboards, switchboards, and separate overcurrent devices mounted in switchboards. Indicate voltage and phase.
   3. Service entrance main disconnects. Indicate other service entrance locations, if any.
   4. Circuit breakers, contactors and relays in separate enclosures.
   5. Switches or dimmers controlling luminaires not located within sight of the controlling device.
   6. Special electrical system components, terminal cabinets, equipment cabinets and equipment racks.
   7. Wall switches controlling equipment.
   8. Special receptacles.

3.3 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboards, gutters, pull boxes, and at load connection.

B. Identify with branch circuit or feeder number for power and lighting circuits.

C. Identify with control wire number as indicated on equipment manufacturer’s shop drawings.

3.4 DUCTBANK WARNING TAPE

A. Identify underground conduits using one underground warning tape per trench.

3.5 PULL BOX AND JUNCTION BOX IDENTIFICATION

A. Each pull and junction box shall be neatly identified with permanent black marker or stick on labels on the outside of the box (where the box is concealed) and on the inside of the box (in exposed locations). Identify each pull and junction box with a system description as follows:
   1. Lighting – Ltg.
   2. Receptacles – Rec.
   3. Equipment – AHU-1 or MZU-1.
   4. Computer – Com.
   5. Telephone – Tel.
   6. Fire Alarm – FA.

END OF SECTION

SECTION 262726 - WIRING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Wall switches

B. Receptacles

C. Device plates and decorative box covers

1.2 RELATED SECTIONS

A. Section 26 05 32 - Boxes

1.3 REFERENCES

A. NECA - Standard of Installation

B. NEMA WD 1 - General Requirements for Wiring Devices

C. NEMA WD 6 - Wiring Device - Dimensional Requirements

D. NFPA 70 - National Electrical Code

1.4 SUBMITTALS FOR REVIEW

A. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.5 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

1.6 REGULATORY REQUIREMENTS

A. Provide products listed and classified by Underwriters Laboratories, Inc., as suitable for the purpose specified and indicated.

1.7 EXTRA MATERIALS

A. Furnish two of each style, size, and finish wall plate.

PART 2 PRODUCTS

2.1 WIRING DEVICES

A. Wiring devices shall be of the same manufacturer insofar as possible. Devices shall be specification grade, switches and receptacles shall be rated 20 amperes, and receptacles shall be grounding type.

B. Devices shall be side wired only.

C. Except as otherwise specified on the drawings, wiring devices shall be Hubbell, Pass & Seymour, Cooper, or Leviton and shall be in accordance with the following schedule:

Device	Hubbell Catalog #	Pass & Seymour Catalog #	Cooper Catalog #	Leviton Catalog #
Single Pole Switch	1221	20AC1	1221	1221-2
Single Pole Switch w/pilot light (120V)	1221-PLC	20AC1-CPL	1221ILC	1221-PLC
2-pole Switch	1222	20AC2	1222	1222-2
3-way Switch	1223	20AC3	1223	1223-2
4-way Switch	1224	20AC4	1234	1224-2
Duplex Receptacle, Standard	5252	5262	5252	5252
Duplex Receptacle, Hospital Grade	8200	9200-HG	8200	8200
Duplex Receptacle, GFI	GF-5262	1591F	GF5292	6598
Duplex Receptacle, Isolated Ground	IG5252	IG6200	IG5262	5262-IG

Device	Hubbell Catalog #	Pass & Seymour Catalog #	Cooper Catalog #	Leviton Catalog #
Duplex Receptacle, Surge-Protected	IG5252-IS	G6262-ISP	IG5262S	N/A
Single Receptacle (15A, 125V)	5251	5261	5251	5251
Duplex Receptacle (20A, 125V)	5352	5362	5352	5352
Single Receptacle (20A, 125V)	5351	5361	5351	5351
Single Receptacle (30A, 125V)	9308	5920	5716N	5371
Single Receptacle (30A, 250V)	9330	5930	5700N	5372
Single Receptacle (30A, 125/250V)	9430	5744	9344N	278
Single Receptacle (50A, 250V)	9367	5950	5709N	5374
Single Receptacle (50A, 125/250V)	9450	5754	7985N	279

D. Wiring device colors shall match existing.

E. Where only one receptacle, single or duplex, is supplied by a branch circuit (dedicated circuit), the receptacle shall have the same ampere rating as the overcurrent protective device ahead of the circuit.

F. Where receptacles are provided for equipment not having grounding-type cords and cord caps, the Contractor shall furnish and install new cords and cord caps on equipment to match new receptacles.

G. Key operated switches shall be same as above except with lock type mechanism. All switches shall use the same key.

H. Weatherproof devices shall be the same as standard devices except with diecast lockable weatherproof plate equal to Intermatic #WP1010HMC.

I. Switch and receptacle combinations shall be devices as above in a 2-gang box.

J. Flush floor power outlets shall be grounded duplex outlets with cast box and brass coverplate equal to Hubbell #B2537 with #S3725. Pedestal type floor fittings shall include duplex or double duplex outlets as indicated with satin chromium finish and cover plates.

K. Flush floor telephone outlet covers shall be brass with two concentric openings with screw type plugs. Model numbers shall be as indicated on the drawings.

L. Ground fault interrupting receptacles shall be duplex type with “Test” and “Reset” buttons. Receptacle shall have feed-through provisions for protection of downstream receptacles. Unit shall be complete with cover plate. Receptacles located on the building exterior, in toilet rooms, and elsewhere as shown on the drawings shall be GFI type. Provide cast weatherproof cover plates with hinge on top for receptacles on the building exterior.

2.2 DEVICE PLATES

A. Device boxes and blanked outlets shall have stainless steel plates equal to Sierra S-Line. Blank outlet plates shall be factory marked to identify the system to which it is connected. Stainless steel plates shall be 0.04 inch thick with #302 satin finish.

1. When new devices are installed within rooms with existing wiring devices, devices and device plates shall match existing devices to the fullest extent possible.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify that outlet boxes are installed at proper height.

B. Verify that wall openings are neatly cut and will be completely covered by wall plates.

C. Verify that floor boxes are adjusted properly.

D. Verify that branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean debris from outlet boxes.

3.3 INSTALLATION

A. Install devices plumb and level.

B. Install switches with OFF position down.

C. Install galvanized steel plates on outlet boxes and junction boxes in unfinished areas, above accessible ceilings, and on surface mounted outlets.

D. Unless otherwise indicated, switches and receptacles shall be oriented vertically, except that horizontal orientation shall be permitted above counters where vertical space is constricted. Weatherproof receptacles shall be mounted horizontally with the hinge at the top.

E. Unless otherwise indicated, switches shall be mounted with center at 48 inches above the floor. Over counter receptacles shall be mounted with center 8 inches above counter top or higher where required to clear backsplash. Unless otherwise indicated, other receptacles shall be mounted with center at 16 inches above floor. Receptacles for equipment shall be mounted at a height appropriate for connection to the equipment.

F. Receptacles for electric water coolers shall be concealed behind the water cooler enclosure.

G. Where vertically oriented, receptacles shall be installed with the grounding slot at the top, except above counters where the grounding slot shall be at the bottom. Where horizontally oriented, receptacles shall be installed with the grounding slot to the right.

H. Wiring shall be connected to the side wiring terminals on wiring devices.

3.4 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Operate each wall switch with circuit energized and verify proper operation.

C. Verify that each receptacle device is energized.

D. Test each receptacle device for proper polarity.

E. Test each GFCI receptacle device for proper operation.

3.5 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

3.6 CLEANING

A. Clean exposed surfaces to remove splatters and restore finish.

END OF SECTION

SECTION 262727 - SUPPORTING DEVICES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Conduit and equipment supports

B. Anchors and fasteners

1.2 REFERENCES

A. NECA Standard of Installation (National Electrical Contractors Association)

B. NFPA 70 - National Electrical Code

1.3 SUBMITTALS FOR REVIEW

A. Submit under provisions of Section 26 01 02.

B. Product Data: Provide manufacturer's catalog data for fastening systems.

1.4 PROJECT FINALIZATION

A. Submit under provisions of Section 26 01 02.

B. Operation and Maintenance Data: Include manufacturer's descriptive literature, installation instructions, maintenance and repair data, and parts listing.

1.5 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 PRODUCT REQUIREMENTS

A. Materials and Finishes: Corrosion resistant.

B. Select materials, sizes, and types of anchors, fasteners and supports to carry the loads of equipment and conduit, including weight of wire in conduit.

C. Anchors and Fasteners:
   1. Concrete Structural Elements: Use precast inserts, expansion anchors and preset inserts.
   2. Steel Structural Elements: Use beam clamps, spring steel clips, and welded fasteners.
   3. Concrete Surfaces: Use self drilling anchors and expansion anchors.
   4. Hollow Masonry, Plaster, and Gypsum Board Partitions: Use toggle bolts and hollow wall fasteners.
   5. Solid Masonry Walls: Use expansion anchors and preset inserts.
   6. Sheet Metal: Use sheet metal screws.
   7. Wood Elements: Use wood screws.

2.2 FORMED STEEL CHANNEL

A. Manufacturers:
   1. B-Line or equal

B. Description: Galvanized steel or zinc plated.

PART 3 EXECUTION

3.1 INSTALLATION

A. Locate and install anchors, fasteners, and supports in accordance with NECA "Standard of Installation".
   1. Do not fasten supports to pipes, ducts, mechanical equipment, or conduit.
   2. Do not drill or cut structural members.
   3. Obtain permission from Architect/Engineer before drilling or cutting structural members.

B. Fabricate supports from structural steel or formed steel members. Rigidly weld members or use hexagon-head bolts to present neat appearance with adequate strength and rigidity. Use spring lock washers under all nuts.

C. Secure floor mounted equipment to floor with machine bolts and anchors in accordance with the manufacturer's recommendations and seismic requirements.

D. Install surface-mounted cabinets and panelboards with minimum of four (4) anchors. Cabinets and panelboards shall not be secured to hollow masonry, plaster, or gypsum board partitions - provide additional blocking as required between studs to securely anchor the cabinet or panelboard.

E. In wet and damp locations use steel channel supports to stand cabinets and panelboards 1 inch off wall.

F. Use sheet metal channel to bridge studs above and below cabinets and panelboards recessed in hollow partitions.

END OF SECTION

SECTION 265000 - LIGHTING

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Interior luminaires and accessories

B. Emergency lighting units

C. Exit signs

D. Ballasts

E. Fluorescent dimming ballasts and controls

F. Fluorescent lamp emergency power supply

G. Lamps

H. Luminaire accessories

1.2 RELATED SECTIONS

A. Section 09 91 00 - Painting

B. Section 26 27 26 - Wiring Devices

1.3 REFERENCES

A. ANSI C78.379 - Electric Lamps - Incandescent and High-Intensity Discharge Reflector Lamps - Classification of Beam Patterns

B. ANSI C82.1 - Ballasts for Fluorescent Lamps - Specifications

C. ANSI C82.4 - Ballasts for High-Intensity Discharge and Low Pressure Sodium Lamps (Multiple Supply Type)

D. NEMA WD 6 - Wiring Devices-Dimensional Requirements

E. NFPA 70 - National Electrical Code

F. NFPA 101 - Life Safety Code

1.4 SUBMITTALS FOR REVIEW

A. Submit under provisions of Section 26 01 01 and as noted below
   1. Prepare submittals promptly and deliver to architect, leaving sufficient time for adequate review and possible resubmittals without jeopardizing project schedule.
   2. Make initial submittal in complete package at one time. Incomplete submittal will be returned unreviewed. Resubmittal must contain all resubmittals at one time. Do not resubmit approved fixtures.
   3. Architect will review only one initial submittal and one resubmittal for each item.
   4. Do not release orders until review of submittals is complete.
   5. Review of submittals and architect's approval notations are for general conformance with information given and design concept expressed in contract documents. Contractor is responsible for dimensions, quantities, methods of construction, coordination between trades, and detailed compliance with contract documents.
   6. Architect's approval does not authorize any deviation from contract documents unless each deviation is circled by contractor on the submittal and marked "OK" by the Architect.

B. "Prior Approval" pre-qualification before bid: Manufacturers other than those listed may request pre-qualification to bid. To request pre-qualification, submit complete materials to architect for review at least ten calendar days before bid date.
   1. Standard products: For each light fixture type, submit the following:
      a. Product data sheets
      b. Photometric report from independent testing laboratory, calculated according to illuminating Engineering Society standards, showing:
         1) Candela distribution curves and tables in lengthwise, crosswise, and 45 degree horizontal planes through fixture and 5 degree increments of vertical angles.
         2) Zonal lumen summary in 10 degree increments
         3) Efficiency
         4) Spacing ratios

5) Lamp shield angles
6) Coefficients of utilization
7) Average luminance at lengthwise, crosswise, and 45 degree, 55 degree, 65 degree, 75 degree, and 85 degree vertical viewing angles.

c. For site lights, classroom lights, and chalkboard/wallwash lights, submit computer calculations to demonstrate equal performance to specified products. Verify with architect the required calculations and assumptions to be used (dimensions, room reflectance, lamp lumen, light loss factor, etc.). For classroom lights, calculate light level on ground with a 5 foot grid of points. For classroom lights, calculate light level on a horizontal desktop at a height of 2 feet 6 inches AFF, on ceiling, and on all four walls with a 2 foot grid of points. For chalkboard/wallwash lights, calculate light level on entire wall with a 2 foot grid of points.

d. Samples when requested by architect.

2. If architect determines that manufacturer is pre-qualified to bid, architect will issue on addendum to contract documents indicating additional manufacturer's name. Pre-qualification does not relieve contractor from full compliance with contract documents.

3. After-bid substitutions: None. Manufacturers other than those listed may request pre-qualification to bid as noted above.

C. Shop Drawings: Indicate dimensions and components for each luminaire that is not a standard product of the manufacturer.

D. Product Data: Provide dimensions, ratings, and performance data.

1.5 PROJECT FINALIZATION

A. Submit under provisions of Section 26 01 02.

B. Luminaires shall be provided with new lamps prior to final acceptance of the project. Any lamps used for more than ninety (90) days as temporary lighting shall be replaced by the Contractor.

C. Operation and Maintenance Data: Include manufacturer's descriptive literature, operating instructions, installation instructions, maintenance and repair data, and parts listing.

D. Warranty: Submit manufacturer's warranty and ensure forms have been filled out in Owner's name and registered with the manufacturer.

1.6 QUALITY ASSURANCE

A. Conform to requirements of NFPA 70.

B. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.

C. Product: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

1.7 WARRANTY

A. Submit under provisions of Section 26 01 02.

B. Interior luminaires furnished under this section shall be guaranteed against defective parts or workmanship for a period of one (1) year after the date of substantial completion. The guarantee shall cover full parts and labor.

C. Products: Listed and classified by Underwriters Laboratories, Inc. as suitable for the purpose specified and indicated.

PART 2 PRODUCTS

2.1 LUMINAIRES

A. Furnish Products as scheduled on the Lighting Fixture Schedule. Refer to Section 26 01 02 for substitutions and product options.

B. Provide luminaires complete with lamps, tubes, ballasts, brackets, hardware, poles, bases, etc. as required for a complete and operable lighting system.

C. Luminaires shall have manufacturer's standard finish unless otherwise noted. Luminaires installed on exterior of building shall be weather-resistant design and display a "Damp" or "Wet"

location label as required per applicable codes. Fixtures installed on low density tile shall be designed for direct surface mounting.

D. Fluorescent luminaires installed on the exterior of the building and/or in unheated spaces shall have cold weather ballasts.

E. Recessed or semi-recessed luminaires shall be provided to be compatible with ceilings as installed. Furnish and install frames where required for proper installation. Recessed incandescent luminaires shall be thermally protected. Integrally ballasted luminaires shall have thermally protected ballasts.

F. Luminaires requiring caps, mounting spacers, hold-down clips or other accessory items shall be furnished complete with same, whether the catalog numbers shown include such items or not.

G. Luminaires shall be designed or gasketed to eliminate any light leaks.

2.2 EXIT SIGNS

A. Exit lights shall be self-contained, fully automatic AC/DC units with sealed pure lead battery and solid state charger. AC operating voltage shall be 120 or 277 volts as required to match area lighting. Lamps shall be LED type unless otherwise indicated on the drawings.

2.3 FLUORESCENT DIMMING BALLASTS

A. Fluorescent dimming ballasts for T-5, T-8, and T-12 lamps:
   1. Manufacturers: Refer to Lighting Fixture Schedule.
   2. Description: Refer to Lighting Fixture Schedule.
   3. Voltage: Match luminaire voltage.

2.4 FLUORESCENT LAMP EMERGENCY POWER SUPPLY

A. Fluorescent luminaires indicated as emergency units shall be complete with an automatic battery pack assembly to operate one lamp. Installation shall be done at the luminaire manufacturer's factory. Unit may be field installed if installation does not void UL label of battery pack or luminaire. Battery pack assemblies for T8 lamps shall provide an initial 1350 lumen, a minimum of 800 lumen of light output after 1½ hours of operation, and shall be equal to Bodine B50 series. Battery pack assemblies for 2-pin twin, quad, or triple twin tube lamps shall provide an initial 950 lumen (for 26W lamp), a minimum of 570 lumen of light output after 1½ hours of operation, and shall be equal to Bodine B426 series. Battery pack assemblies for 4-pin twin, quad, or triple twin tube lamps shall provide an initial 750 lumen (for 26W lamp), a minimum of 450 lumen of light output after 1½ hours of operation, and shall be equal to Bodine B94C series. Luminaire shall have valid UL label with battery-pack installed and be warranted for five years.

B. Include TEST switch and AC ON indicator light, installed to be operable and visible from the outside of an assembled luminaire.

2.5 LAMPS

A. Lamp Manufacturers: General Electric, Osram/ Sylvania, Philips, or approved equal. Where proprietary lamps are indicated by manufacturer's name on the Lighting Fixture Schedule, they shall be furnished exactly as specified.

PART 3 EXECUTION

3.1 INSTALLATION

A. General:
   1. Install light fixtures securely, level, plumb, aligned, and in straight rows. Light fixtures must be installed so they do not shift during relamping or adjustment.
   2. Install in accordance with manufacturer's instructions.
   3. Point-source fixtures: Locate as dimensioned, or in center of tile or on tile joint as drawn; ¼ inch max. off-center tolerance.
   4. Linear fixtures: 1/8 inch max. off-of-true horizontal or vertical variation in any 8 feet portion of run.
   5. Install fixtures with lamps oriented in same direction within each room.

B. Recessed Fixtures:
   1. Point-source fixtures: Install hanger bars to adjacent ceiling framing members and fasten securely.

2. Install bottom of housing aligned with finished ceiling.
3. Seismic Supports:
    a. Slack wires for fixtures in suspended ceilings: #12 solid wires from fixture to structure above, pulled tight and secured with a minimum of four wire turns at top and bottom. Slack wires must comply with applicable portions of Section 09511: Suspended Acoustic Ceilings.
    b. Incandescent point-source fixtures: One (1) slack wire.
    c. Compact fluorescent point-source fixtures: One (1) slack wire.
    d. HID point-source fixtures: Slack wire at each of two (2) diagonal corners.
    e. Fluorescent troffers: Slack wire at each of two (2) diagonal corners if fixture weighs less than 56 pounds; slack wire at each of four (4) corners if fixture weighs more than 56 pounds.
    f. Hold-down clips for fluorescent troffers: Two (2) on each long side (four total per fixture).
4. Keep ceiling insulation at least 3 inches away from fixture unless approved for insulated ceiling.
5. Install trims after painting of spaces. Install trims tightly, with no gaps or light leaks.

C. Ceiling-Mounted and Pendant Fixtures:
1. Supports: Provide support for suspension points so fixtures can be installed securely, including horizontal bars to ceiling members and diagonal wires to structure as required. In suspended grid ceilings, use Peerless Truegrid or equal suspension brackets.
2. Fixture weight less than 50 pounds at each suspension point: Hang from strap or stud on outlet box, or at non-feed points, provide ¼ inch-20 stud projecting ¾ inch below ceiling.
3. Fixture weight 50 pounds or more at each suspension point: Hang directly from structure, either independent of outlet box or from stud extending through outlet box to structure.

D. Wall-Mounted Fixtures:
1. Mounting heights, indicated are from finished floor to centerline of outlet box or recessed housing, unless noted otherwise.
2. Provide backing in wall as required. Fixtures must not droop or tilt away from wall.
3. Wet locations: For surface-mounted fixtures, install continuous bead of sealant between fixture and wall. For recessed fixtures, install sealant to fill gaps between recessed housing and wall.

E. Pole-Mounted or Base-Mounted Fixtures:
1. Install galvanized nuts and washers above and below mounting plate for leveling. After leveling, pack grout between mounting plate and concrete footing, and cut off tops of anchor bolts so base cover fits over entire base assembly.
2. ¼ inch maximum out-of-plumb tolerance for assemblies up to 20 feet high; ½ inch maximum if taller.
3. Touch up paint after poles are installed.

3.2 INSTALLATION OF LUMINAIRES

A. Luminaires shall be installed as indicated and in accordance with the manufacturer's recommendations. Where mounting dimensions are not shown, refer to Architectural drawings for installation details. Luminaires shall be symmetrically located unless otherwise indicated. Luminaire locations shall be exactly moduled with ceiling tile where same occurs.

B. Surface-mounted luminaires shall be supported from outlet box fixture studs, mounting brackets or mounting straps or shall be secured directly to the structural system. Outlet boxes and mounting brackets (or straps) shall be secured to a joist or similar structural unit or to an approved metal support which is secured to such a structural unit. The use of toggle bolts for luminaire support will not be permitted.

C. Pendant or stem-mounted luminaires shall be suspended from single stem assemblies consisting of adjustable stem, ceiling canopy, self-aligning ball coupling at the canopy into which the stem is fastened (allowing the luminaires to swing freely) and fixture studs in 4 inch octagonal outlet boxes where the luminaires are connected electrically. Mounting brackets for hanger stems that do not contain wiring may be fastened, as above, to dummy outlet boxes or shall be securely fastened to the structural ceiling. Outlet boxes and/or stem-mounting brackets shall be secured to a joist or similar structural unit or to an approved metal support which is

secured to such a structural unit. Suspended luminaires shall hang level regardless of uneven or sloping ceilings. Maximum hanger spacing for continuous-row fluorescent luminaires shall be 8 feet. Maximum hanger spacing shall be 4 feet where luminaires having 4 foot channels are used. Twin stem assemblies will not be permitted.

D. Pendant or stem-mounted luminaires shall be provided with matching stems at all support locations. Each stem shall be provided with an internal safety cable securely fastened to the luminaire and to a structural member and shall be capable of supporting ten (10) times the luminaire weight.

E. Luminaires weighing more than fifty (50) pounds shall be supported independently of the junction box provided for electrical connection.

F. Wall-mounted luminaires shall be supported by wall brackets secured to luminaire studs in the outlet boxes or to outlet box “ears”.

G. Recessed luminaires shall be complete with all required hardware and accessories in each case. Where lay-in luminaires cannot be used in suspended ceilings, recessed luminaires shall be installed complete with bar hangers and shall be supported from the ceiling suspension system.

H. Where luminaires are installed in a de-mountable type ceiling, provide a length of flexible conduit and proper conductors such that luminaire may be relocated four feet in any direction without changing the electrical connection.

I. Recessed luminaires in fire rated ceilings shall either be approved for the fire rating of the ceiling or shall be protected by a fire rated housing approved by local authorities and manufacturer. Approval must be in writing and must conform to UL approved assemblies. (Refer to Architect’s drawings for UL assembly numbers.)

J. Install clips to secure recessed grid-supported luminaires in place.

K. Where fluorescent luminaires are installed in continuous rows, provide a separate wireway for branch circuit conductors or use conductors with insulation rated for the temperature and other conditions encountered.

L. Installation of luminaires in Mechanical rooms shall be coordinated with the ductwork and other obstructions. Provide special hangers, as required.

M. All adjustable luminaires shall be aimed as directed by the Architect/Engineer. All luminaires shall be aimed at night.

N. Bond products and metal accessories to branch circuit equipment grounding conductor.

3.3 WIRING

A. Luminaires shall be wired with type TFFN wire. Minimum size shall be No. 16—use larger wire where indicated or where recommended by luminaire manufacturer. Fluorescent troffers shall be connected with branch circuit conductors run in flexible metal conduit not more than 6 feet in length.

B. Provide luminaires with wiring for two-level lighting as indicated. Where 3- or 4-lamp luminaires are used, connect inside lamps to one ballast and outside lamps to one ballast.

C. Exit signs, emergency lighting units and fluorescent luminaire emergency power packs shall be connected to an unswitched leg of the lighting circuit in the area as indicated on the drawings.

D. Bond luminaires and metal accessories to the branch circuit grounding conductor.

3.4 ADJUSTING AND CLEANING

A. Aim and adjust luminaires as indicated, or if not indicated, as directed by the Owner’s representative.

B. Position exit sign directional arrows as indicated.

C. Remove dirt and debris from enclosures.

D. Clean photometric control surfaces as recommended by manufacturer.

E. Clean finishes and touch up damage.

3.5 NOISY BALLASTS

A. The Owner's representative shall determine which ballasts are excessively noisy and to be replaced at no cost to the Owner.

3.6 PROTECTION OF FINISHED WORK

A. Relamp luminaires that have failed lamps at Substantial Completion.

END OF SECTION