



Division of Finance and Business Operations

Wayne State University
Student Center Building Loading Dock Leak Repairs
WSU Project Number 034-282276
Prevailing Wage Work

FOR:

Board of Governors
Wayne State University
Detroit, Michigan

Owner's Agent:

Valerie Kreher, Senior Buyer
WSU – Procurement & Strategic Sourcing
5700 Cass, Suite 4200
Detroit, Michigan 48202
313-577-3720 / 313-577-3747 fax
rfpteam2@wayne.edu and copy
leiann.day@wayne.edu

Owner's Representative:

Chrystal Camilleri, Project Manager
Facilities Planning & Management
Design & Construction Services
5454 Cass
Wayne State University
Detroit, Michigan 48202

Consultant:

Desai/Nasr Consulting Engineers & Neumann/Smith
Architecture
6765 Daly Road / 400 Galleria Office Center, Suite 555
West Bloomfield, Michigan 48322 / Southfield,
Michigan 48034

August 22, 2016

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INFORMATION FOR BIDDERS

OWNER: Board of Governors
Wayne State University

PROJECT: **Student Center Building Loading Dock Leak Repairs**
Project No. **034-282276**

LOCATION: Wayne State University
5221 Gullen Mall, Detroit
Detroit, Michigan 48202

OWNER'S AGENT: **Valerie Kreher, Senior Buyer**
WSU – Procurement & Strategic Sourcing
5700 Cass, Suite 4200
Detroit, Michigan 48202
313-577-3720 / 313-577-3747 fax
rfpteam2@wayne.edu & copy leiann.day@wayne.edu

OWNER'S REPRESENTATIVE: **Chrystal Camilleri**, Project Manager
Facilities Planning & Management
Design & Construction Services
Wayne State University
5454 Cass Avenue
Detroit, Michigan 48202

Architect: **Desai/Nasr Consulting Engineers & Neumann/Smith Architecture**
6765 Daly Road / 400 Galleria Office Center, Suite 555
West Bloomfield, Michigan 48322 / Southfield, Michigan 48034

SPECIAL NOTE: Right to reject any and all proposals, either in whole or in part and to waive any irregularities therein is reserved by the Owner.

BIDS ADVERTISED: **August 22, 2016**

BIDDING: Bidding documents may be obtained by vendors from the University Purchasing Web Site at http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html beginning **August 22, 2016**. When visiting the Web Site, click on the "**Construction**" link in green. Copies of the RFP will not be available at the pre-proposal meeting.

MANDATORY Pre-Bid Conference: **10:00 AM, local time, August 30, 2016** to be held at Wayne State University – **5700 Cass Ave, Conference Room 4002**, Detroit, MI, 48202. Late Arrivals may not be permitted to submit bids.

OPTIONAL Second Walk Through: (if needed) **To be determined at the conclusion of the pre-bid conference, by those in attendance.**

DUE DATE FOR QUESTIONS: Due Date for questions shall be **September 8, 2016 at 12:00 Noon**. All questions must be reduced to writing and emailed to the attention of **Valerie Kreher, Senior Buyer** at **rfpteam2@wayne.edu**, copy to **Leiann Day, Procurement Analyst** at: **leiann.day@wayne.edu**.

Bids Due: Sealed proposals for lump-sum General Contract will be received at the office of the Procurement & Strategic Sourcing located at 5700 Cass Avenue, Suite 4200, Detroit, MI 48202 on **September 15, 2016**, until 2:00 p.m. (local time).

No public bid opening will be held.

Bid Qualification Meeting: Bidders must be available for bid prequalification meeting the day following the bid opening. The lowest qualified bidder will be contacted and requested to meet with Facilities Planning & Management at their office located at 5454 Cass Avenue, Detroit, MI 48202. During the prequalification, the Vendor must provide a

Project Schedule and a Schedule of Values, including a list of Contractor's suppliers, subcontractors and other qualifications.

An unsigned contract will be given to the successful Contractor at the conclusion of the Pre Award meeting, if all aspects of the bid are in order. The Contractor has 5 business days to return the contract to the Project Manager for University counter signature. The contractor must also submit a Performance Bond as outlined above and a Certificate of Insurance in the same 5 business day period. In the event the Contractor fails to return the documents in this 5 day period, the University reserves the right to award the contract to the next most responsive bidder.

All available information pertaining to this project will be posted to the Purchasing web site at

http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html.

Information that is not posted to the website is not available/not known

INSTRUCTIONS TO BIDDERS

OWNER: Board of Governors
Wayne State University

PROJECT: **Student Center Building Loading Dock Leak Repairs**
Project No. **034-282276**

LOCATION: Wayne State University
5221 Gullen Mall, Detroit,
Detroit, Michigan 48202

OWNER'S AGENT: **Valerie Kreher, Senior Buyer**
WSU – Procurement & Strategic Sourcing
5700 Cass, Suite 4200
Detroit, Michigan 48202
313-577-3720 / 313-577-3747 fax
rfpteam2@wayne.edu & copy leiann.day@wayne.edu

1. PROPOSALS

- A. The Purchasing Agent will receive sealed Proposals for the work as herein set forth at the place and until the time as stated in the "Information for Bidders", a copy of which is bound herewith in these specifications. **No public bid opening will be held.**
- B. Proposals shall be for a **lump-sum General Contract for the entire work of the Project as provided in the Form of Proposal.**
- C. Proposals shall be submitted in duplicate on forms furnished with the Bidding documents. The forms must be fully filled out in ink or typewritten with the signature in longhand, and the completed forms shall be without alterations, interlineations, or erasures. Forms shall contain no recapitulations of the work to be done. Each proposal shall be delivered in an opaque sealed envelope, marked **"PROPOSAL"** AND SHALL BEAR THE NAME OF THE PROJECT AND THE NAME OF THE BIDDER. Proposals submitted by telephone or telegraph will not be accepted. Modifications by telephone or telegraph to previously submitted proposals will not be accepted.
- D. **(revised 5-29-2009)** All base bids must be conforming to the detailed specifications and drawings provided by the University, including any Addenda issued. Voluntary Alternates will only be considered if the Contractor has also submitted a conforming base bid. Any stipulation of voluntary alternates or qualifications contrary to the Contract requirements made by the Bidder in or accompanying his proposal as a condition for the acceptance of the Contract will not be considered in the award of the Contract and will cause the rejection of the entire Proposal.
- E. **The competency and responsibility of Bidders will be considered in making the award. The Owner does not obligate himself to accept the lowest or any other bids. The Owner reserves the right to reject any and all bids and to waive any informalities in the Proposals.**

2. PROPOSAL GUARANTEE (revised 3-22-2012)

- A. A certified check or bank draft payable to the Owner, or satisfactory Bid Bond executed by the Bidder and Surety Company, in an amount equal to not less than five percent (5%) of the maximum proposal amount shall be submitted with each Proposal, which amount may be forfeited to the Board of Governors, Wayne State University, if the successful Bidder refuses to enter into a Contract within ninety (90) days from receipt of Proposals.
- B. Bond must be issued by a Surety Company with an "A rating as denoted in the AM Best Key Rating Guide"

- C. The bid deposit of all bidders except the lowest three will be returned within three (3) days after the bids are opened. After the formal Contract and bonds are approved, the bid deposit will be returned to the lowest three bidders, except when forfeited.
- D. Bid bonds shall be accompanied by a Power of Attorney authorizing the signer of the bond to do so on behalf of the Surety Company.
- E. Withdrawal of Proposals is prohibited for a period of ninety (90) days after the actual date of opening thereof.

3. CONTRACT SECURITY (revised 3-22-2012)

- A. The successful Bidder will be required to furnish a Performance Bond and Labor and Material Payment bond in an amount equal to 100% of the contract award amount, and include such cost in the Proposal, complying with the laws of the State of Michigan. The graduated formula no longer applies.
- B. Performance Bond and Labor and Material Payment Bond shall be from a surety company acceptable to the Owner and made payable as follows:
 - (1) A bond for 100% of the contract award amount to the Board of Governors of Wayne State University, and guaranteeing the payment of all subcontractors and all indebtedness incurred for labor, materials, or any cause whatsoever on account of the Contractor in accordance with the laws of the State of Michigan relating to such bonds.
 - (2) A bond for 100% of the contract award amount to the Board of Governors of Wayne State University to guarantee and insure the completion of work according to the Contract.
- C. The only acceptable Performance Bond shall be the AIA A312 – 2010.
- D. Bond must be issued by a Surety Company with an “A rating as denoted in the AM Best Key Rating Guide”.

4. BOND CLARIFICATION

For bids below \$50,000.00,

- A. Bid bond will not be required.
- B. Performance Bond will not be required.

5. INSPECTION

- A. Before submitting his Proposal, each Bidder shall be held to have visited the site of the proposed work and to have familiarized himself as to all existing conditions affecting the execution of the work in accordance with the Contract Documents. No allowance or extra consideration on behalf of the Contractor will subsequently be made by reason of his failure to observe the Conditions or on behalf of any subcontractor for the same reason.

6. EXPLANATION TO BIDDERS AND ADDENDA

- A. Neither the Owner nor Representative nor Purchasing Agent will give verbal answers to any inquiries regarding the meaning of drawings and specifications, and any verbal statement regarding same by any person, previous to the award, shall be unauthoritative.
- B. Any explanation desired by Bidders must be requested of the Purchasing Agent in writing, and if explanation is necessary, a reply will be made in the form of an Addendum, a copy of which will be

forwarded to each Bidder registered on the Bidders' List maintained by Procurement & Strategic Sourcing.

- C. All addenda issued to Bidders prior to date of receipt of Proposals shall become a part of these Specifications, and all proposals are to include the work therein described.

7. INTERPRETATION OF CONTRACT DOCUMENTS

- A. If any person contemplating submitting a bid for the proposed Contract is in doubt as to the true meaning of any part of the drawings, specifications, or other Contract Documents, he may submit to the Purchasing Agent, a written request for an interpretation thereof. The person submitting the request will be responsible for its prompt delivery. Any interpretation of the Contract Documents will be made by an addendum duly issued. A copy of such addendum will be mailed and delivered to each registered Bidder. Each proposal submitted shall list all addenda, by numbers, which have been received prior to the time scheduled for receipt of proposal.

8. SUBSTITUTION OF MATERIALS AND EQUIPMENT*

- A. Whenever a material, article or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard, and any material, article, or piece of equipment of other manufacturers or vendors which will perform adequately the duties imposed by the general design will be considered equally acceptable provided that the material, article, or piece of equipment so proposed is, in the opinion of the Architect, of equal substance, appearance and function. It shall not be purchased or installed by the Contractor without the Architect's written approval.

9. TAXES

- A. The Bidder shall include in his lump sum proposal and make payment of all Federal, State, County and Municipal taxes, including Michigan State Sales and Use Taxes, now in force or which may be enacted during the progress and completion of the work covered.

10. REQUIREMENTS FOR SIGNING PROPOSALS AND CONTRACTS

- A. The following requirements must be observed in the signing of proposals that are submitted:
- (1) Proposals that are not signed by individuals making them shall have attached thereto a Power of Attorney, evidencing the authority to sign the Proposal in the name of the person for whom it is signed.
 - (2) Proposals that are signed for partnership shall be signed by all of the partners or by an Attorney-in-Fact. If signed by an Attorney-in-Fact, there must be attached to the Proposal a Power of Attorney evidencing authority to sign the Proposal, executed by the partners.
 - (3) Proposals that are signed for a corporation shall have the correct corporate name thereof and the signature of the President or other authorized officer of the corporation, manually written in the line of the Form of Proposal following the words "signed by". If such a proposal is signed by an official other than the President of the Corporation, a certified copy of resolution of the Board of Directors, evidencing the authority of such official to sign the bid, shall be attached to it. Such proposal shall also bear the attesting signature of the Secretary of the Corporation and the impression of the corporate seal.

11. QUALIFICATIONS OF BIDDERS

- A. The Owner may request each of the three (3) low bidders to submit information necessary to satisfy the Owner that the Bidder is adequately prepared to fulfill the Contract. Such information may include past performance records, list of available personnel, plant and equipment, description of work that will be done simultaneously with the Owner's Project, financial statement, or any other pertinent

information. This information and such other information as may be requested will be used in determining whether a Bidder is qualified to perform the work required and is responsible and reliable.

12. SPECIAL REQUIREMENTS

- A. The attention of all Bidders is called to the General Conditions, Supplementary General Conditions, and Special Conditions, of which all are a part of the Specifications covering all work, including Subcontracts, materials, etc. Special attention is called to those portions dealing with Labor Standards, including wages, fringe benefits, Equal Employment Opportunities, and Liquidated Damages.
- B. Prior to award of the project, the apparent low bidder will be required to produce a schedule of values which will include the proposed subcontractors for each division of work and whether the subcontractor is signatory or non-signatory. A contract will not be issued to the apparent low bidder until this document is provided. A contractor will have one week to produce this document. If the required document is not received within this time, the bidder will be disqualified.

13. NOTICE OF AWARD/ACCEPTANCE OF BID PROPOSAL (revised 12-15-2009)

- A. The Proposal shall be deemed as having been accepted when a copy of the Contract (fully executed by both the vendor and the appropriate signatory authority for the University), with any/all Alternates, Addenda, and Pre-Contract Bulletins, as issued by the office or agent of the Owner has been duly received by the Contractor. After signing the Contracts, the Contractor shall then return all copies, plus any required bonds and certificates of insurance, to the office of the Owner's Representative, at 5454 Cass, Wayne State University, Detroit, MI 48202. Construction will begin when the fully-executed contract has been returned to the Contractor.

14. TIME OF STARTING AND COMPLETION

- A. It is understood that the work is to be carried through to substantial completion with the utmost speed consistent with good workmanship and to meet the established start and completion dates.
- B. The Contractor shall begin work under the Contract without delay, upon receipt of a fully-executed contract from the Owner, and shall substantially complete the project ready for unobstructed occupancy and use of the Owner for the purposes intended within the completion time stated in the Contract.
- C. The Contractor shall, immediately upon receipt of fully-executed contract, schedule his work and expedite deliveries of materials and performance of the subcontractors to maintain the necessary pace for start and completion on the aforementioned dates.

15. CONTRACTOR'S PERFORMANCE EVALUATION (2-2015)

In an effort to provide continuous process improvement regarding the construction of various university projects, Wayne State University is embarking upon a process of evaluating the contractor's overall performance following the completion of work. At the conclusion of the construction project a subjective evaluation of the Contractor's performance will be prepared by the Project Manager and the supervising Director of Construction. The evaluation instrument that will be used in this process is shown in Section **00440-01 - Contractor's Performance Evaluation**.

16. BIDDING DOCUMENTS

- A. Bid specifications are not available at the University, but are available beginning **August 22, 2016** through Wayne State University Procurement & Strategic Sourcing's Website for Advertised Bids: **http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html**. The plans for this project can be viewed in advance and/or printed from the above website. Copies of the RFP will not be available at the pre-proposal meeting.

- B. **DOCUMENTS ON FILE (revised 12-2007)**

- (1) *Wayne State University Procurement & Strategic Sourcing's Website.*
All available information pertaining to this project will be posted to the Purchasing web site at http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html.
Information that is not posted to the website is not available/not known.
- (2) Notification of this Bid Opportunity has been sent to *DUNN BLUE (for purchase of Bid Documents only), DODGE REPORTS, REED CONSTRUCTION, CONSTRUCTION NEWS and the CONSTRUCTION ASSOCIATION OF MICHIGAN (CAM).*
- (3) Please note: Effective December 1, 2007, bid notices will be sent only to those Vendors registered to receive them via our Bid Opportunities list serve. To register, to http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html, and click on the "Join our Listserve" link at the top of the page.

15. Smoke and Tobacco-Free Policies (9-2015)

On August 19, 2015, Wayne State joined hundreds of colleges and universities across the country that have adopted smoke- and tobacco-free policies for indoor and outdoor spaces. Contractors are responsible to ensure that all employees and all subcontractors' employees are in compliance anytime they are on WSU's main, medical, or extension center campuses. The complete policy can be found at <http://wayne.edu/smoke-free/policy/>.

NOTICE OF MANDATORY PRE-BID CONFERENCE

PROJECT: **Student Center Building Loading Dock Leak Repairs,**

PROJECT NOS.: **WSU PROJECT NO. 034-282276**

It is **MANDATORY** that each Contractor proposing to bid on this work must attend a pre-bid conference at the following location:

Wayne State University
5700 Cass Ave, Conference Room 4002
Detroit MI 48202

10:00 AM, local time, August 30, 2016

The purpose of this conference is to clarify the procedures, scope of work, and to identify any omissions and/or inconsistencies that may impede preparation and submission of representative competitive bids.

In the event that less than 4 individual contractor firms attend the pre-bid conference, the University reserves the right, at its sole discretion, to either reschedule the pre-bid conference or proceed and offer a second pre-bid conference date. (Attendance at only one pre-bid conference will be required).

An attendance list shall be prepared and minutes of the conference shall be furnished to all those attending.

Any clarifications or corrections that cannot be made at the conference will be by Addendum.

For your convenience a map of the University and appropriate parking lots can be downloaded and printed from: **<http://campusmap.wayne.edu/>**. Guest parking in any of the University student and guest lots is **\$7.50**. A detailed list of Cash & Coin operated lots can be viewed at **http://procurement.wayne.edu/cash_and_credit_card_lots.php**. Cash lots dispense change in quarters. Due to time constraints, Vendors are encouraged to avoid parking at meters on the street (especially blue "handicapped" meters).

All available information pertaining to this project will be posted to the Purchasing web site at

http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html.

Information that is not posted to the website is not available/not known.

AGENDA

- I. Welcome and Introductions
 - A. Wayne State University Representatives
 - B. Vendor Representatives
 - C. Sign in Sheet- be sure to include your fax number and email address (LEGIBLY) on the sign in sheet.
- II. Brief Overview of Wayne State University
 - A. Purpose and Intent of RFP.
 - B. Detailed review of the RFP and the requirements for a qualified response.
 - C. Review of all pertinent dates and forms that are REQUIRED for a qualified response.
- III. Vendor Questions/Concerns/Issues
 - A. Questions that can be answered directly by the appropriate person in this meeting will be answered and both question and answer will be recorded in the minutes of the meeting.
 - B. Questions that need to be researched will be answered and a nature of clarification will be emailed to the appropriate ListServ. See http://www.forms.purchasing.wayne.edu/Adv_bid/Adv_Bid_Listserve.html for a list of ListServ Bid Lists.
 - C. Minutes will be emailed to all participants of the meeting within a reasonable amount of time. (be sure to include your email address/addresses on the sign in sheet)
 - D. Questions and concerns that come up after this meeting are to be addressed to **Valerie Kreher**, Procurement & Strategic Sourcing. Discussion with other University members is seriously discouraged and could lead to disqualification from further consideration. All questions and answers will be recorded and emailed to all participants of the RFP.
 - E. Due date for questions is **September 8, 2016, 12:00 noon**.
- IV. Minimum Participation
 - A. Pre-registration for the Pre-Bid meeting is required. In the event that we do not have four (4) or more eligible bidders pre-registered, the University reserves the right to postpone the Pre-bid meeting with up to 4 business hour notice.
 - B. If less than 4 individual contractor firms attend the mandatory pre-bid meeting, the University reserves the right, at its sole discretion, to either reschedule the pre-bid conference or proceed and offer a second pre-bid conference date. (Attendance at only one pre-bid conference will be required).
 - C. On the day of the bid opening, if less than 3 sealed bids are received, the University reserves the right, at its sole discretion, to rebid the project in an effort to obtain greater competition. If the specifications are unchanged during the rebid effort, any contractor who submitted a bid will be given the option of keeping its bid on file for opening after the second bid effort, or of having the bids returned to them unopened.
- V. Proposal Due Date- **September 15, 2016, 2:00 p.m.**
- VI. Final Comments
- VII. Adjourn

VENDOR NAME _____

GENERAL CONTRACT - PROPOSAL FORM (revised 1 - 2011)

Please Note – Vendors must Pre-qualify themselves when responding to this bid opportunity. Our Prequalification questions can be found on page 4 of this section.

OWNER: Board of Governors
Wayne State University

PROJECT: Student Center Building Loading Dock Leak Repairs

PROJECT NO.: WSU PROJECT NO. 034-282276

PROJECT TYPE: \$160,000 Work

PURCHASING AGENT: Valerie Kreher, Senior Buyer
WSU – Procurement & Strategic Sourcing
5700 Cass, Suite 4200
Detroit, Michigan 48202
313-577-3720/ 313-577-3747 fax
rfpteam2@wayne.edu & copy leiann.day@wayne.edu

OWNER'S REPRESENTATIVE: Chrystal Camilleri, Project Manager
Design & Construction Services
Facilities Planning & Management
Wayne State University
5454 Cass Avenue
Detroit, Michigan 48202

TO: Board of Governors
Wayne State University
Detroit, Michigan

BASE PROPOSAL:

The undersigned agrees to enter into an Agreement to complete the entire work of the **Student Center Building Loading Dock Leak Repairs** project (WSU Project No. 034-282276) in accordance with the Bidding Documents for the following amounts:

_____ \$ _____ Dollars

ALTERNATES: The following alternates to the base proposal(s) are required to be offered by the respective bidder. The undersigned agrees that the following amounts will be added to or deducted from the base bid as indicated, for each alternate which is accepted.

ALTERNATE NO. 1:

The undersigned agrees to enter into an agreement to complete the Alternate # 1 work of the _____ project and to provide all labor and material associated with the work in accordance with the Bidding Documents for the following amounts:

(select one) ADD _____ \$ _____ Dollars

or
DEDUCT _____ \$ _____ Dollars**UNIT PRICING (as listed in the detailed specifications, section - _____).**

Item No.	Description	Price per
Unit Price 1	Concrete Surface Scaling Repairs - overhead surface (1/2" depth). Contractor is to include 12 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft
Unit Price 2	Partial Depth Wall Repairs (3" approximate depth). Contractor is to include 150 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft
Unit Price 3	Partial Depth Overhead Concrete Repairs (3" approximate depth). Contractor is to include 15 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft
Unit Price 4	Concrete wall cover removal and replacement. Contractor is to include 650 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft
Unit Price 5	Reinforce existing beams w/ welded steel plate where significant corrosion present. Contractor is to include 30 LF as part of the base bid. Unit Price is for additional if required.	\$ / lf ft
Unit Price 6	Clean steel of corrosion and coat with corrosion inhibiting paint. Contractor is to include 90 lf as part of the base bid. Unit Price is for additional if required.	\$ / lf ft
Unit Price 7	Remove and Replace Joint Sealants. Contractor is to include 600 lf as part of the base bid. Unit Price is for additional if required.	\$ / lf ft
Unit Price 8	Route and Seal Cracks (overhead). Contractor is to include 140 lf as part of the base bid. Unit Price is for additional if required.	\$ / lf ft
Unit Price 9	Route and Seal Cracks (vertical). Contractor is to include 25 lf as part of the base bid. Unit Price is for additional if required.	\$ / lf ft
Unit Price 10	Plaster Repair. Contractor is to include 300 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft
Unit Price 11	Paint. Contractor is to include 1,200 sf as part of the base bid. Unit Price is for additional if required.	\$ / sq ft

LAWN REPLACEMENT:

The undersigned agrees that, in the event of existing lawn or landscaping damage, due to the Contractor's work, that has not been properly addressed and repaired to the satisfaction of the University, the University may repair/replace the lawn and/or landscaping, and that the expense will be at a **unit cost of \$10.00 per square yard for lawn, and landscaping at a rate of 1.5 times the cost of said repairs**, the full cost of which shall be reimbursed by the contractor.

**CONTRACT CHANGE
ORDERS: (revised 4-01-2011)**

The undersigned agrees to the following pricing formula and rates for changes in the contract work:

1. For subcontract work, Contractor's markup for handling, overhead, profit and bonding on subcontractors sell price, shall not exceed **5%**.
 - 1.1. **For subcontract work that is provided on a time and material basis, the subcontractor shall be permitted a single markup for handling, overhead, profit and bonding of 5%. When a markup is identified in the subcontractor's hourly labor rate, additional markup on labor is not permitted.**
 - 1.1.1 **For changes that are based upon a lump sum value, subcontractor shall provide all labor and material back-ups to ensure that duplicative charges are avoided and authorized mark-ups for OH&P can be confirmed**
2. For work by his own organization, Contractor's markup for job* and general overhead, profit and bonding shall not exceed **5%** of the net labor** and material costs.

Within 14 days of the project's contract execution Contractor shall provide to the Owner; Subcontractor's hourly labor rate breakdown details. This requirement shall extend to the lowest level of subcontractor participation.

* Job and general overhead includes supervision and executive expenses; use charges on small tools, scaffolding, blocking, shores, appliances, etc., and other miscellaneous job expenses.

** Net labor cost is the sum of the base wages, fringe benefits established by governing trade organizations, applicable payroll taxes, and increased expense for contractor's liability insurance (Workman's Compensation, P.L. and P.D.).

TIME OF COMPLETION:

(revised 4-01-2011)

The Contract is expected to be fully executed on or about 25 calendar days after successful bidder qualification and recommendation of award. The undersigned agrees to start construction **immediately after** receipt of a fully executed contract, and to complete the work as follows:

Substantial Completion will be completed no later than **December 2, 2016**.

LIQUIDATED DAMAGES:

It is understood and agreed that, if project is not completed within the time specified in the contract plus any extension of time allowed pursuant thereto, the actual damages sustained by the Owner because of any such delay, will be uncertain and difficult to ascertain, and it is agreed that the reasonable foreseeable value of the use of said project by Owner would be the sum of **\$500.00, Five Hundred Dollars per day**, and therefore the contractor shall pay as liquidated damages to the Owner the sum of **\$500.00, Five Hundred Dollars per day** for each day's delay in substantially completing said project beyond the time specified in the Contract and any extensions of time allowed thereunder.

TAXES:

The undersigned acknowledges that prices stated above include all applicable taxes of whatever character or description. Michigan State Sales Tax is applicable to the work. Bidder understands

that the Owner reserves the right to reject any or all bids and to waive informalities or irregularities therein.

ADDENDA:

The undersigned affirms that the cost of all work covered by the following Addenda are included in the lump sum price of this proposal.

Addendum No. _____ Date _____	Addendum No. _____ Date _____
Addendum No. _____ Date _____	Addendum No. _____ Date _____
Addendum No. _____ Date _____	Addendum No. _____ Date _____
Addendum No. _____ Date _____	Addendum No. _____ Date _____
Addendum No. _____ Date _____	Addendum No. _____ Date _____

CONTRACTOR'S PREQUALIFICATION STATEMENT & QUESTIONNAIRE:**Our Minimum Requirements for Construction Bids are:**

WSU considers this project: **\$160,000 Work.**

Criteria	Small Project bid less than \$50,000	Medium Project bid between \$50,001 and \$250,000	Large Project bid between \$250,001 and \$2 million	Very Large Project bid greater than \$2 million
EMR Rating (Experience Modification Rating)	1.0 or Less	1.0 or Less	1.0 or Less	1.0 or Less
Bondable Vendor	N.A.	Required	Required	Required
Length of Time in Construction Business	2 Years	3 Years	5 Years	5 Years
Demonstrated Experience in Projects Similar in Scope and Price in the last 3 years	1 or more	1 or more	2 or more	3 or more
Unsuccessful Projects on Campus in last 3 years	None Allowed	None Allowed	None Allowed	None Allowed
Failure to comply with Prevailing Wage and/or Project Labor requirements	None Allowed	None Allowed	None Allowed	None Allowed
Withdrawn University Bid (with or without Bond forfeiture) within the last 3 years **	1 or less	1 or less	1 or less	1 or less
Company currently not in Chapter 11 of the US Bankruptcy Code	1 Year	2 Years	3 Years	3 Years

** Withdrawal of a bid is subject to the University suspension policy, for a period up to one year.

Contractors must complete the following information to determine their eligibility to participate in this bid. This information is required with your Bid to the University

Failure to complete this form in its entirety will result in your bid being disqualified.

Check one of the following on the makeup of your company:

_____ Corporation

_____ Individual

_____ Partnership

_____ Joint Venture

_____ Other (Explain below):

Diversity Classification: Please indicate the appropriate diversity classification for your company. The University recognizes the following groups as diverse or disadvantaged:

- Majority Owned _____
- Minority Business Enterprises (MBE) _____
- Women Business Enterprises (WBE) _____
- Disabled Veteran Enterprises (DVBE) _____
- Disabled Person Enterprises (DBE) _____
- Veteran Owned Businesses (VBE) _____
- Small Businesses per the US Small Business Administration (SBE) _____
- Other (Please Explain): _____

1. How many years has your organization been in business as a contractor? _____
2. How many years has your organization been in business under its present business name? _____
3. List states in which your organization is legally qualified to do business. _____

4. Provide the Name and Address of your Liability Insurance Carrier. _____

5. What is your current EMR Rating? _____
The minimum requirement is an EMR Rating of 1.0 or less for all projects. Bidders with a rating higher than 1.0 understand that their bid may be disqualified, at the sole discretion of the University.
6. What percentage of work performed on projects are by company employees; excluding any hired subcontracting and outsourced relationships, for the bid submitted? _____ %
7. What percentage of work performed on your companies behalf are by subcontracted business relationships; disallowing 1099 contracting work forces, for the bid submitted? _____ %
8. Have you ever failed to complete any work awarded to you? If so, attach a separate sheet of explanation. Include the name of the Project, the customer, the dates of the work, and the amount of the contract?
9. Have you withdrawn a bid after a University bid opening and/or refused to enter into a contract with the University upon notification of award within the last 3 years? If so, state the Project Name and Number, and the date of bid submission below.

10. Has any officer or partner of your organization ever been an officer or partner of another organization that failed to complete a construction contract? If so, attach a separate sheet of explanation.

11. List the construction experience of the principals and superintendents of your company.

Name: _____ Title: _____

Name: _____ Title: _____

Name: _____ Title: _____

12. List the construction Projects, and approximate dates, when you performed work similar in Scope to this project.

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

13. List the construction Projects, and approximate dates, when you performed work similar in Dollar Amount to this project.

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

Project: _____ Owner: _____

Contract Amount: _____ Date Completed: _____

14. Is your Company "bondable"? Yes _____ No _____

15. What is your present bonding capacity? \$ _____

16. Who is your bonding agent?

NAME: _____

ADDRESS: _____

PHONE: () _____

CONTACT: _____

17. Does your company agree to provide financial reports to the University upon request? Failure to agree may result in disqualification of your bid. Yes _____ No _____
18. Does your company agree that all of the Terms and Conditions of this RFP and Vendor's Response Proposal become part of any ensuing agreement? Yes _____ No _____
19. Does your company agree to execute a contract containing the clauses shown in Section 00500 "Agreement Between Contractor and Owner for Construction"? Yes _____ No _____
- If "No", clearly note any exceptions to any information contained in the contract documents and include with your proposal.
20. Did your company quote based upon **Prevailing Wage Rates**? Yes _____ No _____
21. Does your company agree to comply with the University **Smoke and Tobacco Free Policies**? Yes _____ No _____

Note: Contractors submitting proposals for this project may, at the discretion of the University, be required to submit references including contact information to be used to assist in the post bid evaluation process for the subject project

**ACKNOWLEDGEMENT OF
MINIMUM QUALIFICATIONS:**

The undersigned has read and understands the minimum qualifications for University construction projects, and has completed the Prequalification section completely and accurately. The undersigned understands that a contractor, who fails to meet the minimum qualifications **in the category identified for this project, will be disqualified from consideration for the project.**

ACCEPTANCE OF PROPOSAL:

The undersigned agrees to execute a Contract, being the Wayne State University standard form titled "Agreement Between Contractor and Owner for Construction" (see section 00500 of the bid documents), provided that we are notified of the acceptance of our Proposal within sixty (60) days of the date set for the opening thereof.

The undersigned below understands that the bid will be disqualified if the Prequalification information above is not completed in its entirety.

NAME OF COMPANY: _____

OFFICE ADDRESS: _____

PHONE NUMBER: _____ DATE _____

FAX NUMBER: _____

SIGNED BY: _____
Signature

(Please print or type name here)

TITLE _____

EMAIL ADDRESS: _____ @ _____

PREVAILING WAGE RATE SCHEDULE (revised 4-05-2010)

- A. See also Page 00100-4 Section 12.B
- B. Wayne State University requires all project contractors, including subcontractors, who provide labor on University projects to compensate at a rate no less than prevailing wage rates.
- C. The rates of wages and fringe benefits to be paid to each class of laborers and mechanics by each VENDOR and subcontractor(s) (if any) shall be not less than the wage and fringe benefit rates prevailing in Wayne County, Michigan, as determined by the United States Secretary of Labor. Individually contracted labor commonly referred to as "1099 Workers" and subcontractors using 1099 workers are not acceptable for work related to this project.
- D. To maintain compliance with State of Michigan Ordinances, Certified Payroll must be provided for each of the contractor's or subcontractor's payroll periods for work performed on this project. Certified Payroll should accompany all Pay Applications. Failure to provide certified payroll will constitute breach of contract, and pay applications will be returned unpaid, and remain so until satisfactory supporting documents are provided.

A Prevailing Wage Rate Schedule has been issued from the State of Michigan that is enclosed in this section

Additional information can be found on the University Procurement & Strategic Sourcing's web site at the following URL address:

<http://procurement.wayne.edu/vendors/wage-rates.php>

If you have any questions, or require rates for additional classifications, please contact:

Michigan Department of Consumer & Industry Services,
Bureau of Safety and Regulation, Wage and Hour Division,
7150 Harris Drive,
P.O. Box 30476,
Lansing, Michigan 48909-7976

http://www.michigan.gov/dleg/0,1607,7-154-27673_27706---,00.html

E. Wayne State University's Prevailing Wage Requirements:

When compensation will be paid under prevailing wage requirements, the University shall require the following:

- A. The contractor shall obtain and keep posted on the work site, in a conspicuous place, a copy of all current prevailing wage and fringe benefit rates.
- B. The contractor shall obtain and keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each laborer and mechanic employed in connection with this contract.
- C. The contractor shall submit a completed certified payroll document [U.S. Department of Labor Form WH 347] verifying and confirming the prevailing wage and benefits rates for all employees and subcontractors for each payroll period for work performed on this project. The contractor shall include copies of pay stubs for all employee or contract labor payments related to Wayne State University work. The certified payroll form can be downloaded from the Department of Labor website at <http://www.dol.gov/whd/forms/wh347.pdf>.
- D. A properly executed sworn statement is required from all tiers of contractors, sub-contractors and suppliers which provide services or product of \$1,000.00 or greater. Sworn statements must accompany applications for payment. All listed parties on a sworn statement and as a subcontractor must submit Partial or Full Conditional Waivers for the amounts invoiced on the payment application. A copy of the acceptable WSU Sworn Statement and Waiver will be provided to the awarded contractor.

- E. Apprentices for a skilled trade must provide proof of participation in a Certified Apprenticeship Program and the level of hours completed in the program.
- F. Daily project sign-in sheets and field reports for the project must be turned in weekly.

Note: Contractor invoices WILL NOT be processed until all listed certified payroll documents are received.

- G. If the VENDOR or subcontractor fails to pay the prevailing rates of wages and fringe benefits and does not cure such failure within 10 days after notice to do so by the UNIVERSITY, the UNIVERSITY shall have the right, at its option, to do any or all of the following:
 - 1. Withhold all or any portion of payments due the VENDOR as may be considered necessary by the UNIVERSITY to pay laborers and mechanics the difference between the rates of wages and fringe benefits required by this contract and the actual wages and fringe benefits paid.
 - 2. Terminate this contract and proceed to complete the contract by separate agreement with another vendor or otherwise, in which case the VENDOR and its sureties shall be liable to the UNIVERSITY for any excess costs incurred by the UNIVERSITY.
 - 3. Propose to the Director of Purchasing that the Vendor be considered for Debarment in accordance with the University's Debarment Policy, found on our website at <http://procurement.wayne.edu/docs/appm28.pdf>

Terms identical or substantially similar to this section of this RFP shall be included in any contract or subcontract pertaining to this project.
- H. The current applicable prevailing wage rates as identified by the State of Michigan Department of Consumer & Industry Services, Bureau of Safety and Regulation, Wage and Hour Division are attached. Refer to item C above if additional information is required.
- I. Prior to award of the project, the apparent low bidder will be required to produce a schedule of values which will include the proposed subcontractors for each division of work and whether the subcontractor is signatory or non-signatory. A letter of intent or **contract will not** be issued to the apparent low bidder until this document is provided. The apparent low bidder will have one week to produce this document. If the required document is not received within this time, the bidder will be disqualified, and the next low bidder will be required to provide this schedule of values.

APPENDIX A FOR THE STATE PREVAILING WAGE SCHEDULE FOR THIS PROJECT

See web site:
http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html

**APPENDIX A FOR THE
STATE PREVAILING WAGE SCHEDULE FOR THIS PROJECT**

See web site:

http://www.forms.procurement.wayne.edu/Adv_bid/Adv_bid.html

Key Performance Indicator Tracking Sworn Statement Requirements

The University tracks its level of spend along a number of socio-economic categories. This includes its spend with Diverse organizations, its spend with Detroit based organizations, and its spend with Michigan based organizations. To assist with this, The University has the following requirements for submission of your bid and for Pay Applications submitted by the successful contractor.

Submission of Bid

1. **Diverse or disadvantaged prime contractor:** Please specify in your bid whether ownership of your company is a certified diverse or disadvantaged business, according to the categories listed previously in section 00300. In accordance with guidelines from the MMSDC and GL-WBC, the University considers a business to be diverse when it is at least 51% owned, operated, and controlled by one or more members of a diverse classification. Section 00300 has a place for this information on page 00300-3.
2. **Detroit based and Michigan Based contractor:** It is presumed that the contractor is headquartered at the location we submit our Purchase Orders to, and that it should be the same address as listed in Section 00300 at the signature line. If a supplier is headquartered elsewhere, please make note of this information, so we do not inaccurately include or exclude spend.

Pay Applications and Sworn Statements

1. **Applicability:** The University requires Sworn Statements with Pay Applications for all construction projects that use
 - Subcontractors greater than \$1,000.00
 - Significant suppliers (those with a purchase value of \$1,000 or more).
2. **Sworn Statements:** The Supplier must submit applicable monthly sworn statements to the Project Manager and the Buyer of Record, in the format shown on page 2 of Section 00420. Sworn Statements are “always required” for this project, and are to be submitted to **(Project_Manager)**, the project manager, and to **Valerie Kreher, Senior Buyer**
3. **Inclusion:** Sworn Statements are to detail the inclusion of recognized diverse and disadvantaged groups in the following 2 categories; Subcontracts or Suppliers. The University recognizes the following groups as diverse or disadvantaged:
 - Minority Business Enterprises (MBE)
 - Women Business Enterprises (WBE)
 - Disabled Veteran Enterprises (DVBE)
 - Disabled Person Enterprises (DBE)
 - Veteran Owned Businesses (VBE)
 - Small Businesses per the US Small Business Administration (SBE)
4. A complete set of the University's Supplier Diversity Program, which includes complete definitions of each of the above, can be downloaded from our web site at <http://policies.wayne.edu/administrative/04-02-supplier-diversity.php>.

STATE OF MICHIGAN				Sworn Statement						
COUNTY OF _____ } §										
_____, being duly sworn, deposes and says that (s)he makes the Sworn Statement on behalf of _____, who is the Contractor for an improvement to the following described real property situated in _____ County, Michigan, and described as follows:										
That the following is a statement of each subcontractor and supplier and laborer, for which laborer the payment of wages or fringe benefits and withholdings is due but unpaid, with whom _____ has subcontracted for performance under the contract with the Owner or lessee thereof, and that the amounts due to the persons as of the date thereof are correctly and fully set forth opposite their names, as follows. (Subcontracts or suppliers of values of less than \$1,000 are omitted.)										
NO.	SUBCONTRACTOR (Name, Address, Telephone Number) SUPPLIER OR LABORER	S=Supplier C=Contractor	Type of Entity *see below	TYPE OF IMPROVEMENT FURNISHED	TOTAL CONTRACT PRICE	CONTRACT CHANGE +/-	ADJUSTED CONTRACT AMOUNT	AMOUNT PAID TO DATE	AMOUNT CURRENTLY OWING	BALANCE TO COMPLETE
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										
11										
12										
TOTALS										
* Type of Entity: MBE=Minority Business Enterprises; WBE=Women Business Enterprises; DVBE=Disabled Veteran Enterprises; DBE=Disabled Person Enterprises; VBE=Veteran Owned Businesses; SBE=Small Businesses per the US Small Business Administration										
Please attach additional sheets if the number of items exceeds the page limit.										

That _____ has not procured material from, or subcontracted with, any person other than those set forth above and owes no money for the improvement.											
Deponent further says that _____ makes the foregoing statement as a representative of _____, for the purpose of representing to the owner or lessee of the above-described premises and his or her agents that the above-described property is free from claims of construction liens, or the possibility of construction liens, except as specifically set forth above and except for claims of construction liens by laborers which may be provided pursuant to section 109 of the construction lien act, Act No. 497 of the Public Acts of 1980, as amended, being section 570.1109 of the Michigan Compiled Laws.											
										Deponent Signature	
<u>WARNING TO OWNER:</u> AN OWNER OR LESSEE OF THE ABOVE-DESCRIBED PROPERTY MAY NOT RELY ON THIS SWORN STATEMENT TO AVOID THE CLAIM OF A SUBCONTRACTOR, SUPPLIER, OR LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING OR A LABORER WHO MAY PROVIDE A NOTICE OF FURNISHING PURSUANT TO SECTION 109 OF THE CONSTRUCTION LIEN ACT TO THE DESIGNEE IS NOT NAMED OR HAS DIED.											
ON RECEIPT OF THIS SWORN STATEMENT, THE OWNER OF LESSEE, OR THE OWNER'S OR LESSEE'S DESIGNEE, MUST GIVE NOTICE OF ITS RECEIPT, EITHER IN WRITING, BY TELEPHONE, OR PERSONALLY, TO EACH SUBCONTRACTOR, SUPPLIER AND LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING UNDER SECTION 109 OR, IF A NOTICE OF FURNISHING IS EXCUSED UNDER SECTION 108 OR 108A, TO EACH SUBCONTRACTOR, SUPPLIER OR LABORER WHO HAS PROVIDED A NOTICE OF FURNISHING OR WHO IS NAMED IN THE SWORN STATEMENT MAKES A REQUEST, THE OWNER, LESSEE, OR DESIGNEE SHALL PROVIDE THE REQUESTER A COPY OF THE SWORN STATEMENT WITHIN 10 BUSINESS DAYS AFTER RECEIVING THE REQUEST.											
<u>WARNING TO DEPONENT:</u> A PERSON, WHO WITH INTENT TO DEFRAUD, GIVES A FALSE STATEMENT IS SUBJECT TO CRIMINAL PENALTIES AS PROVIDED IN SECTION 110 OF THE CONSTRUCTION LIEN, ACT, ACT NO. 497 OF THE PUBLIC ACTS OF 1980, AS AMENDED, BEING SECTION 570.2220 IF THE MICHIGAN COMPILED LAWS.											
Subscribed and sworn to before me this _____ day of _____										(NOTARY STAMP BELOW)	
Notary Public _____											
_____ County, Michigan - My commission expires: _____											
Rev.4_06.05.15											

WAYNE STATE UNIVERSITY
PAYMENT PACKAGE DOCUMENT REQUIREMENTS (Revised 7-23-2015):

Review and comply with Section 410 of Bid Front End Documents.
Review and comply with Article 15 of the Supplemental General Conditions.

PAYMENT APPLICATION - AIA document G702 & G703 (or equivalent) –Checklist:

- Correct Project Name – Found on your contract.
- Correct Project Number – Found on your contract.
- Purchase Order Number – Required prior to beginning work.
- Correct Application Number.
- Correct Period Reporting Dates – Applications support docs must be sequential and within application range.
- Approved & Executed Change Orders Listed. (Cannot invoice for unapproved Change Orders)
- Schedule of Values percentages and amounts match the approved Pencil Copy Review – Signed by the Architect, Contractor, and University Project Manager.
- Correct Dates – Back dating not accepted.
- Signed and Notarized.

SWORN STATEMENT – Checklist:

- List all contractors, sub-contractors, suppliers... ≥ \$1000.00
- A sworn statement is required from every Sub Contractor on the job with a material purchase or sub-contract of \$1,000 or more. (All tiers.)
- Purchase Order Number
- Dates – Back dating not accepted.
- Signed and Notarized.

CERTIFIED PAYROLL - Dept. of Labor Form WH-347 – Checklist: (Union and Non-Union)

- For every contractor & sub-contractors work, for each week within the application reporting period.
- Correct Project Number
- List ALL workers on-site.
- Make sure their addresses are listed.
- Social Security Numbers MUST be blackened out or listed in XXX-XX-1234 format.
- Work classifications based on the job specific Prevailing Wage Schedule descriptions. If you require rates for additional classifications, contact the Michigan Department of Consumer & Industry Services.
http://www.cis.state.mi.us/bwuc/bsr/wh/revised_rates/whc_tbl.htm
- For any workers paid at the Apprenticeship rates - proof of enrolled program and current completion required.
- Rate of Pay verified against the Prevailing Wage Schedule with an hourly cost breakdown of fringes paid.
- Authorized signatures on affidavit.
- Dates – must represent the weeks within the application period.

APPLICATION PACKAGE SUPPORTING DOCUMENTATION –

- Copies of **Pay Stubs** for each Certified Payroll period reported may be required– (Social Security Numbers MUST be blackened out or listed in XXX-XX-1234 format. Pay stubs need to reflect claimed participation of fringes like Medical, Dental, Retirement or 1099 classification.)
- **Proof of Ownership** for any 'Owner Operator' contractors not wishing to claim their time on prevailing wage. – (Must list their hours and dates worked on the WH-347 Form and enter EXEMPT on the income

brackets.) The Owner must provide copies of "DBA" registration form confirming status as exempt from prevailing wage requirements.

- ***Proof of Stored Materials*** – Bill of Lading, Delivery Receipts, Pictures, Certificate of Insurance or endorsement page specifically insuring stored material at location, and pictures with materials clearly separated and labeled for WSU. The University reserves the right to on site verification of stored materials.
- ***Partial Conditional Waivers*** – The contractor shall provide covering the entire amount of the application. For non-bonded projects all sub-contractors must provide for all applications which they have a draw.
- ***Partial Unconditional Waivers*** – Must release amount paid for work and be delivered starting with application #2 and in no case after payment application #3, through all sequential applications for contractors, sub-contractors, and suppliers listed on the Sworn Statements.
- ***Full Unconditional Waivers*** – Must be delivered with final payment application, releasing all contractors, sub-contractors, suppliers listed on the sworn statements and any legitimate notice of furnishings reconciled.

FINAL PAYMENT APPLICATION – Checklist:

- Clear and concise As-Built drawings.
- Operation and Maintenance Manuals
- Process and training directions (if applicable).
- Warranty of work in accordance with project documents.
- Submittals log and samples installed on the job.
- Certificate of Substantial Completion
- Full Unconditional Waiver

○

The Project Manager may provide additional requirements as may apply to individual jobs

Revised 7-23-2015

Contractor Performance Evaluation

In an effort to provide continuous process improvement regarding the construction of various university projects, Wayne State University is embarking upon a process of evaluating the contractor's overall performance following the completion of work. At the conclusion of the construction project a subjective evaluation of the Contractor's performance will be prepared by the Project Manager and the supervising Director of Construction. The evaluation instrument that will be used in this process is presented below:

Contractor Evaluation Sheet											
Contractor Name : _____					Project Name: _____						
Contractor's PM: _____					PM Name: _____						
Superintendent: _____					Project Number: _____			PO#: _____			
Designer: _____											
EVALUATION SCORING: 1 = Unacceptable, 2 = Less than Satisfactory, 3 = Satisfactory or Neutral, 4 = Good, 5 = Excellent Note: Comments are REQUIRED if any score is less than 3. Write comments on the back of the evaluation.											
Field Management					Score		Weight		Total		
1)	Work Planning / Schedule:				1	2	3	4	5	8	
2)	Compliance with Construction Documents:				1	2	3	4	5	8	
3)	Safety Plan & Compliance:				1	2	3	4	5	5	
4)	Compliance with WSU procedures:				1	2	3	4	5	7	
5)	Effectiveness of Project Supervision:				1	2	3	4	5	8	
6)	Project Cleanliness:				1	2	3	4	5	3	
7)	Punch List Performance:				1	2	3	4	5	5	
8)	Contractor Coordination with WSU Vendors:				1	2	3	4	5	3	
9)	Construction Quality:				1	2	3	4	5	8	
Administrative Management											
10)	Responsiveness:				1	2	3	4	5	4	
11)	Contractor communication:				1	2	3	4	5	4	
12)	Contractor Professionalism:				1	2	3	4	5	3	
13)	Subcontractor Professionalism:				1	2	3	4	5	3	
14)	Compliance with Contract Requirements:				1	2	3	4	5	3	
15)	Submittal\RFI Process:				1	2	3	4	5	4	
16)	Close-out - Accuracy of Documents				1	2	3	4	5	7	
Invoice and Change Management											
17)	Change Management				1	2	3	4	5	7	
18)	Applications for Payment				1	2	3	4	5	6	
19)	Timely payment of Subs/Suppliers:				1	2	3	4	5	4	
									Total 100	Total	
20)	Level of Self-Performance:				Low	Med		High			
21)	Would you work with this Contractor again?				Yes		No				
22)	Would you work with this team again?				Yes		No				
One year follow up											
23)	Warranty Support:				1	2	3	4	5		
Evaluator											
Signature _____					Date: _____						
Title: _____											
Name: _____											
Please Print					Rev. 2-17-2015 RGP						

We are providing the evaluation instrument at this time to allow the bidder's to review and understand the criterion that the University's project management team will use to evaluate the successful bidder's performance at the conclusion of the project. It is the intent of the university to utilize the results of this evaluation to determine if it will continue to conduct business with the Contractor in future bidding opportunities.

The scoring range is between 100 to 500 points, with 100 being low and 500 being high. Each question has an associated 'weight' factor, and the higher the weight; the greater the importance of satisfactory performance on the final score. At the conclusion of the project, and after the Project Manager and the supervising Director has prepared their independent evaluation, the University's project representative will meet with the Contractor to review the results. Acceptable contractor performance is essential to avoid having the University decline future work with the Contractor. An appeals process is available for Contractor disagreement with evaluation scores.

Contractors engaged in work are encouraged to maintain an open and regular dialog with the Design and Construction Department over the course of the construction project to ensure that the final evaluation is an accurate representation of the Contractor's performance.

WAYNE STATE UNIVERSITY

AGREEMENT BETWEEN THE UNIVERSITY AND CONTRACTOR FOR CONSTRUCTION SERVICES

Executed as of the _____ day of _____, 2015 by and between:

The Board of Governors, Wayne State University
Detroit, Michigan 48202
(The University)

and

CONTRACTOR'S_NAME
CONTRACTOR'S_ADDRESS

regarding

PROJECT_NAME
PROJECT_LOCATION
CONTRACT_NUMBER

In consideration of the mutual covenants and conditions contained herein, the Parties agree as follows:

Article 1 - Scope of Work

- 1.1 This Agreement provides for "(Enter a one or two-sentence description of the project)". The documents listed in Article 4 fully define the scope of work.
- 1.2 The Contractor shall furnish all the labor, materials, equipment, services, and supervision to perform all the work shown on the drawings and specifications listed in Article 18, including any addenda issued during the bid phase, and approved change orders issued during the construction phase.
- 1.3 The Contractor shall notify the University in writing within five (5) calendar days when the Contractor discovers any condition that will affect the contract amount or the completion date.

Article 2 - Time of Completion

- 2.1 The work to be performed under this Agreement shall commence upon the Contractor's receipt of a fully-executed Agreement, and substantial completion shall be achieved by Month_Day_Year.

Article 3 - The Contract Sum

- 3.1 The University shall pay the Contractor a "lump sum/not-to-exceed (pick one)" amount of \$\$\$\$\$\$ ("Amount in words 00" /100 dollars) for the performance of all work associated with the Contractor's Base Bid "and Alternates (List)".
- 3.2 The University may, at its sole discretion, during the life of the contract, award the following alternates at the amounts indicated:
"(If section 3.2 is not used, delete all text and enter_Deleted"

Description

Amount

- Alternate ☐
Alternate ☐
Alternate ☐

- 3.3 In the event additional work becomes necessary, the following unit prices will apply:
"(If section 3.3 is not used, delete all text and enter_Deleted"

Work Item

Unit Price

1.
2.
3.

Article 4 - The Contract Documents

- 4.1 The Contract Documents shall consist of this Agreement, the drawings and specifications as listed in Article 18, the General Conditions of the Contract for Construction as defined by AIA Document A201 1970 Edition, except as otherwise provided herein, and Wayne State University's Supplementary General Conditions 1997 Edition.
- 4.2 For any inconsistencies found among or between these Contract Documents, the language contained in this Agreement shall prevail over all other documents and the Supplementary

General Conditions shall prevail over the General Conditions. In the event of a conflict between the Drawings and Specifications, the requirement for the higher quantity and/or higher quality shall prevail.

Article 5 – Examination of Premises

- 5.1 The Contractor acknowledges that the University provided the opportunity for a thorough examination of the project site and its surroundings and that the Contractor knows of no conditions preventing accomplishment of the full scope of work within the time and for the amount specified in this Agreement.
- 5.2 The University will deny all claims for additional time and/or cost for conditions that could have been reasonably discovered during such an examination.

Article 6 - The Architect/Engineer

- 6.1 The Architect/Engineer for this project is:
"(List the Architect and Engineer separately if appropriate)"

Architect's/Engineer's Firm Name
Street Number and Street Name
Suite or PO Box
City, State, Zip
Phone No. /FAX No.

- 6.2 The University will appoint a Project Manager who will be the University's point of contact for all matters of contract administration including, but not limited to, interpretation of documents, defining the scope of work, approving work schedules, and approving contract payments.

Article 7 - Additional Work

- 7.1 The University reserves the right to let other Agreements in connection with this work. The Contractor will afford other Contractors or the University's own workforce reasonable opportunity for the delivery and storage of their material and for the performance of their work and shall properly connect and coordinate its work with theirs.
- 7.2 If any part of the Contractor's work depends for proper execution or results upon the work of another Contractor or the University's own workforce, the Contractor shall inspect and promptly report to the University's Project Manager any defects in such work that render it unsuitable for such proper execution and results. The Contractor's failure to so inspect and report shall constitute an acceptance of the work of others as fit and proper for reception of the Contractor's work and as a waiver of any claim or defense against the University or other contractor which relies in whole or in part upon the contention that such work was unsuitable for proper execution and resolution.

Article 8 – Dispute Resolution

- 8.1 Jurisdiction over all claims, disputes, and other matters in question arising out of or relating to this contract or the breach thereof, shall rest in the Court of Claims of the State of Michigan. No provision of this agreement may be construed as Wayne State University's consent to submit any claim, dispute or other matter in question for dispute resolution pursuant to any arbitration or mediation process, whether or not provisions for dispute resolution are included in a document

which has been incorporated by reference into this agreement. Specifically, all references to Arbitration contained in the General Conditions are superseded by this Article.

- 8.2 In any claim or dispute by the Contractor against the University, which cannot be resolved by negotiation, the Contractor shall submit the dispute in writing for an administrative decision by the University's Vice President for Finance and Administration, within 30 days of the end of negotiations. Any decision of the Vice President shall be made within 45 days of receipt from the Contractor and is final unless it is challenged by the Contractor by filing a lawsuit in the Court of Claims of the State of Michigan within one year of the issuance of the decision. The Contractor agrees that appeal to the Vice President is a condition precedent to filing suit in the Michigan Court of Claims.
- 8.3 For purposes of this section, the "end of negotiations" shall be deemed to have occurred when:
- 8.3.1 Either party informs the other that pursuant to this section, negotiations are at an impasse; or
- 8.3.2 The Contractor submits the dispute in writing to the Vice President.
- 8.4 Unless otherwise agreed by the University in writing, and notwithstanding any other rights or obligations of either of the parties under any Contract Documents or Agreement, the Contractor shall continue with the performance of its services and duties during the pendency of any negotiations or proceedings to resolve any claim or dispute, and the University shall continue to make payments in accordance with the Contract Documents; however, the University shall not be required or obligated to make payments on or against any such claims or disputes during the pendency of any proceeding to resolve such claims or disputes.

Article 9 - Termination for Convenience

- 9.1 Upon thirty days written notice to the Contractor, the University may, without cause and without prejudice to any other right or remedy of the University, elect to terminate the contract. In such case, the Contractor shall only be paid (without duplication of any items), using a Close out Change Order, for the following:
- 9.1.1 For completed and acceptable work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;
- 9.1.2 For expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted work, including fair and reasonable sums for overhead and profit on such expenses.
- 9.2 The Contractor shall not be paid on account of loss of anticipated profits or revenue, delay or disruption, or other economic loss arising out of or resulting from such termination. For purposes of this section, "fair and reasonable sums for overhead and profit" shall be determined by reference to Michigan law, without reference to principles used for such determinations in arbitration.

Article 10 - Progress Payments

- 10.1 On or before the 20th day of each month, the Contractor shall submit a written application for payment, using form AIA G702, to the Architect/Engineer and the University's Project Manager for review. The Architect/Engineer shall have ten (10) calendar days to accept or reject the Contractor's application for payment. Acceptable applications for payment shall then be submitted to the University for Payment of authorized amount(s) within thirty (30) calendar days of receipt by the University's Project Manager.
- 10.2 The application for payment shall contain a full schedule of values organized and sorted by subcontractor, by Construction Specifications Institute standard work categories, or in another format acceptable to the University.
- 10.3 Monthly progress payments shall show the percentage of work installed as of the date of the application, less amount previously installed and the amount due for the application period. The Contractor shall deduct a 10% retainage from the balance due for each progress payment and indicate the net amount due on each application.
- 10.4 When 50% of the work associated with this Agreement is installed, the Contractor shall not deduct additional retainage from the balance due from the University. When substantial completion is achieved and acknowledged by the Architect/Engineer, the Contractor and the University in writing, the University shall remit to the Contractor all but 2% of the retainage. The remaining 2% shall be retained by the University until the final payment is authorized and remitted to the Contractor.

Article 11 - Acceptance and Final Payments

- 11.1 Final payment shall be due thirty (30) days after the completion of the work, including all punch list items, provided the work is fully completed and the Agreement fully performed.
- 11.2 Upon receipt of written notice that the work is ready for final inspection and acceptance, the Architect/Engineer shall promptly inspect the work. When the Architect/Engineer concludes that the work is acceptable and the Agreement to be fully performed, the Architect/Engineer shall promptly issue a final certificate with an original signature, stating that the work provided is complete and acceptable and that the entire remaining balance found to be due the Contractor shall be remitted by the University once the final application for payment is received.
- 11.3 If, after the work has been substantially completed, full completion thereof is materially delayed through no fault of the Contractor, and the Architect/Engineer so certifies, the University shall, upon certificate of the Architect/Engineer, and without terminating the Contract, make payments of the balance due for that portion of the work fully completed and accepted. Such payments shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

Article 12 - Non-Discrimination

- 12.1 The Contractor agrees that it will not discriminate against any employee or applicant for employment, to be employed in the performance of this Agreement, with respect to hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of race, color, religion, sex, age, national origin, or ancestry. Breach of this covenant may be regarded as material breach of this Agreement.

- 12.2 The Contractor further agrees that it will, in all subcontracts relating to the performance of the work under this Agreement, provide in its subcontracts that the subcontractor will not discriminate against any employee or applicant for employment, to be employed in the performance of such contract, with respect to hire, tenure, terms, conditions or privileges of employment, or any matter directly or indirectly related to employment because of race, sex, age, color, religion, national origin or ancestry. Breach of this covenant may also be regarded as a material breach of this Agreement.

Article 13 – Laborers and Mechanics

- 13.1 All laborers and mechanics must be covered by Worker's Compensation and Employer's Liability Insurance as required by Federal and Michigan law. The Contractor shall also require all of its Subcontractors to maintain this insurance coverage.
- 13.2 The Contractor acknowledges and shall abide by the University's prohibition on use of 1099 independent contractors and owner / operator business entities. The Contractor shall ensure that all classifications of laborers and construction mechanics performing Work on the Project job site are employees of the Contractor or any Trade Contractor for any tier thereof, and that each worker is covered by workers compensation insurance

Article 14 - Prevailing Wages

- 14.1 The Contractor and each subcontractor shall pay to each class of mechanics and laborers not less than the wage and fringe benefit rates prevailing in the Detroit Metropolitan Area, as determined by the Michigan Department of Licensing and Regulatory Affairs, Department of Wage and Hour.. The Contractor shall post on site, in a conspicuous place, a copy of all applicable wage and benefit rates, and shall provide the University with a copy of the applicable wage and benefit rates.
- 14.2 The Contractor and each subcontractor shall keep an accurate record showing the name and occupation of and the actual benefits and wages paid to each laborer and mechanic employed in connection with this contract. The Contractor and each subcontractor shall make certified payroll records available to the University's representatives upon request.
- 14.3 If a Contractor or subcontractor fails to pay the prevailing rates of wages and fringe benefits and does not cure such failure within ten (10) days after notice to do so by the University, the University shall have the right, at its option, to do any or all of the following:
- 14.3.1 Withhold all or any portion of payments due the Contractor as may be considered necessary by the University to pay laborers and mechanics the difference between the rates of wages and fringe benefits required by this Agreement and the actual wage and fringe benefits paid.
- 14.3.2 Terminate part or all of this Agreement or any subagreement and proceed to complete the Agreement or subagreement by separate agreement with another Contractor or otherwise, in which case the Contractor and its sureties shall be liable to the University for any excess costs incurred by the University.
- 14.4 The Contractor shall include terms identical or substantially similar to this section in any Agreement or subagreement pertaining to the project.

Article 15 - Save Harmless

- 15.1 The Contractor shall indemnify, defend and hold harmless the University, its agents and employees from any and all loss, damage, claims, and causes of action whatsoever, including all costs, expenses and attorneys' fees arising out of Contractor's performance of obligations under the terms and conditions of this agreement. Such responsibility shall not be construed as liability for damage caused by or resulting from the negligence of the University, its agents other than the Contractor, or its employees.

Article 16 - Liquidated Damages

- 16.1 It is understood and agreed that, if the project is not completed within the time specified in the Agreement plus any extension of time allowed pursuant thereto, the actual damages sustained by the University because of any such delay will be uncertain and difficult to ascertain, and it is agreed that the reasonable foreseeable value of the use of said project by the University would be the sum of \$\$\$\$\$\$ ("Amount in words 00" /100 dollars) per day. Therefore, the Contractor shall pay as liquidated damages to the University the sum of \$\$\$\$\$\$ ("Amount in words 00" /100 dollars) per day for each day's delay in substantially completing said project beyond the time specified in this Agreement and any extensions of time allowed thereunder.

"ENTER N/A FOR ABOVE AMOUNT IF NO LIQUIDATED DAMAGES"

Article 17 - Interpretation

- 17.1 This Agreement shall be interpreted and construed according to the laws of the State of Michigan.
- 17.2 If one part of this Agreement is found to be void by legal or legislative action, the remainder of the contract remains in full effect.

Article 18 - Drawings and Specifications

- 18.1 The Technical Specifications and the Project Manual dated SPECIFY_DATES, and the following List of Drawings represents the scope of work as defined in the Contract Documents from Article 4.

<u>Drawing No.</u>	<u>Description</u>	<u>Dated</u>
--------------------	--------------------	--------------

IN WITNESS WHEREOF the parties to these presents have hereunto set their hands as of the day and year first written above.

Signed, sealed and delivered
In the presence of:

CONTRACTOR'S NAME GOES HERE

By _____
Signature

Please print name here

Date signed

Title

Witness

**THE BOARD OF GOVERNORS of
WAYNE STATE UNIVERSITY**

By _____
William R. Decatur, Vice President for
Finance and Business Operations

Date signed

Form Contract Approved by OGC 06/13 - LG
Rev. 5-6-30-2014 formatting only RGP
Rev. 6-1-15-2015 date changes only SS
Rev. 7-7-1-2015 formatting, signatory only RGP

FORM OF GUARANTEE**PROJECT: Student Center Building Loading Dock Leak Repairs****OWNER: BOARD OF GOVERNORS, WAYNE STATE UNIVERSITY****CONTRACTOR: _____****DATE: _____**

Know all men by these presents that, in consideration of my (our) having been awarded the Contract or Subcontract for complete furnishing and installation of:

Student Center Building Loading Dock Leak Repairs (034-282276)**For: Board of Governors, Wayne State University**

In conformity with drawings and specifications prepared by Architect or Engineer, **Desai/Nasr Consulting Engineers & Neumann/Smith Architecture**, and known as the buildings indicated above, I (we) do hereby agree that, should I (we) be notified that the said work has proved faulty, etc., that I (we) will return to the buildings within three (3) working days of the receipt of such notice, and will furnish the necessary labor and material to repair such work to the satisfaction of the Owner and without cost to the Owner.

The Agreement shall remain in full force and effect **for a one year period (DATE TBD)**

WITNESS:signed: _____
Subcontractor

by: _____

address: _____

city/state/zip: _____

signed: _____
General Contractor

by: _____

(THIS FORM TO BE FILED IN DUPLICATE.)

GENERAL CONDITIONS (Revised 10-2009)

- A. Although AIA Document A201 - Twelfth Edition (April 1970) - "General Conditions of the Contract for Construction" is not bound herein, it forms a part of these construction documents.
- B. A reference copy of AIA Document A201 - Twelfth Edition (April 1970) - "General Conditions of the Contract for Construction" is on file at the following location:

Wayne State University
Finance & Facilities Management
Procurement & Strategic Sourcing
Academic / Administrative Services Building
5700 Cass Avenue
Detroit Michigan 48202

SUPPLEMENTARY GENERAL CONDITIONS
OF
THE CONTRACT FOR CONSTRUCTION

Facilities Planning & Management - Design & Construction Services
Wayne State University

WSU SUPPLEMENTARY GENERAL CONDITIONS
OF THE
CONTRACT FOR CONSTRUCTION

NOTE: The following items related to A.I.A. General Conditions, A.I.A. Document A-201 - Twelfth Edition (April 1970), by specific number being amended to. These items, as amendments, shall have precedence over the article being amended.

ARTICLE 1 - CONTRACT DOCUMENTS

1.1 DEFINITIONS

1.1.5 The Agreement

The Agreement executed by the Contractor and the Owner.

1.2 EXECUTION, CORRELATION, INTENT, AND INTERPRETATIONS

1.2.6 "General Conditions and "Supplementary General Conditions" apply with equal force to all Contractors, Subcontractors work, and extra work required under this Contract.

1.2.7 Precedence of Drawings and Specifications.
The Agreement has precedence over WSU Supplementary General Conditions.

WSU Supplementary General Conditions have precedence over A.I.A. A-201 General Conditions of the Contract.

Specifications have precedence over drawings. Full-size drawings have precedence over scale drawings. Large-scale plans and details have precedence over small-scale plans and details. Figured dimensions have precedence over plans and elevations.

ARTICLE 2 - ARCHITECT

2.1 DEFINITION

2.1.1.1 The term Architect or Architect/Engineer as used in these specifications refers to Facilities Planning and Management - Design Services, and/or Consulting Architect/Engineer.

2.2 ADMINISTRATION OF THE CONTRACT

2.2.16 The Architect will assign Field Representatives to make periodic visits to the project for the purpose of assisting the Architect in carrying out his field responsibilities at the site. The duties, responsibilities and limitations of authority of any such Field Representative shall be as follows:

- a. Explain Contract Documents: Assist the Contractor via the Contractor's Superintendent to understand the intent of the Contract Documents.
- b. Observations: Conduct on-site observations and spot checks of the work in progress as a basis for determining conformance of the work, material, and equipment with the Contract Documents.
- c. Additional Information: Obtain from the Architect, additional details or information, if and when required, at the job site for proper execution of the work.
- d. Modifications: Consider and evaluate suggestions or modifications that may be submitted by the Contractor and report them with recommendations to the Architect for final decision.
- e. Construction Schedule and Completion: Be alert to the completion, and report same to the Architect. When the construction work has been completed in accordance with the Contract Documents, advise the Architect that the work is ready for general inspection and acceptance.

- f. Job Conferences: Attend and report to the Architect on all required conferences held at the job site.
- g. Observe Tests: See that tests which are required by the Contract Documents are actually conducted; observe, record and report to the Architect all details relative to the test procedures; and advise the architect's office in advance of the schedules of tests.
- h. Inspection by Others: If inspectors, representing local, state or federal agencies having jurisdiction over the project, visit the job site, accompany such inspectors during their trips through the project, record the outcome of these inspections, and report same to the Architect's office.
- i. Shop Drawings: Do not permit the installation of any materials and equipment for which shop drawings are required unless such drawings have been duly approved and issued by the Architect.
- j. Contractor's Requisitions for Payment: Review and make recommendations to the Architect for disposition.
- k. List of Items for Correction: After substantial completion, make a list of items for correction before final inspection and check each item as it is corrected.
- l. Owner's Occupancy of the Building: If the Owner occupies (to any degree) the building prior to actual completion of the work by the Contractor, be especially alert to possibilities of claims for damage to completed work prior to the acceptance of the building.
- m. Owner Existing Operation: In the case of additions to or Demolitions of an existing facility, which must be maintained as an operational unit, be alert to conditions on the job site which may have an effect on the Owner's existing operation.
- n. Limitations of Authority: Do not become involved in any of the following areas of responsibility unless specific exceptions are established by written instructions issued by the Architect.
 - aa. Do not authorize deviations from the Contract Documents.
 - bb. Avoid conducting any test personally.
 - cc. Do not enter into the area of responsibility of the Contractor's field superintendent.
 - dd. Do not expedite job for Contractor unless so instructed by the Architect.
 - ee. Do not advise on or issue directions relative to any aspect of the building technique or sequence unless a specific technique or sequence is called for in the Specifications or by written instructions from the Architect.
 - ff. Do not approve shop drawings or samples.
 - gg. Do not authorize or advise the Owner to occupy the Project, in whole or in part, prior to the final acceptance of the building.
 - hh. Do not issue a Certificate for Payment.

ARTICLE 3 - OWNER**3.5 OWNER'S RIGHT TO DO WORK**

- 3.5.1 The Owner may exercise his right, which is hereby acknowledged by the Contractor, to let independent of the Contract for the work herein specified, any other work on the premises even if of like character and trades, and the Owner shall not be liable for any damage, loss or expense incurred by the Contractor through the fault of any other Contractor so employed by the Owner. The Contractor acknowledges the necessity of work by others, to be performed at approximately the same time as the work hereunder, and agrees to perform his work in full cooperation with the work of such other trades and/or Contractors, partially

or entirely completed, by such other trades and/or Contractors, or by the Owner, when, in the opinion of the Architect, such access or use is necessary for the performance and completion of any portion or all of the work of others or of any work on the site.

3.6 OWNER'S ACCESS AND PARTIAL OCCUPANCY

3.6.1 The Owner shall have access to the work at all times, and at his election, may from time to time (prior to the stipulated contract completion date) occupy any of the units or parts of the project as the work in connection therewith is complete to such a degree as will, in the opinion of the Owner, permit their temporary or permanent use. The Owner will, prior to any such partial occupancy, give notice to the Contractor thereof and such occupancy shall be upon the following terms:

- a. Such occupancy shall not constitute an acceptance of work not performed in accordance with the Contract nor shall such occupancy relieve the Contractor of liability to perform any work by the Contract by not complete at the time of occupancy.
- b. Except as otherwise provided by an agreement at the time of such partial occupancy, the Contractor shall be relieved of all maintenance costs on units or parts so occupied.
- c. The Contractor shall not be responsible for wear and tear or damage resulting from partial occupancy.
- d. The Owner shall assume risk of loss with respect to any unit or part so occupied.
- e. The Contractor shall, if required by the Owner, furnish heat, light, water, or other such services to the units or parts occupied and the Owner shall make proper remuneration therefore to the Contractor.

3.6.2 The Contractor agrees that the Owner shall have the right, after seven (7) days' written notice to the Contractor, to place and install as much equipment and machinery during the progress of the work as is possible before the completion of the various parts of the work; and further agrees that such placing and installation of equipment shall not in any way evidence the completion of the work or any portion thereof, nor signify the Owner's acceptance of the work or any portion thereof. Should the Owner place or install such equipment and machinery with his own forces he shall be responsible for any damage to work of the Contractor caused by the Owner's work or workmen. Should the Owner have such placement or installation performed by another Contractor, then the Owner shall require said Contractor to be responsible for all such damage caused by his work, his workers, or his subcontractors.

ARTICLE 4 - CONTRACTOR

4.4 LABOR AND MATERIALS

4.4.3 All materials shall be so delivered, stored and handled to prevent the inclusion of foreign materials and the damage of materials by water or breakage. Packaged materials shall be delivered and stored in original packages until ready for use. Packages or materials showing evidence of water or other damage shall be rejected. All materials shall be of the respective qualities specified herein.

4.4.4 The Contractor shall be responsible for the proper care and protection of all his materials, equipment, etc., delivered at the site. Building materials, equipment, etc., may be stored on the premises subject to the approval of the Architect.

4.4.5 To insure timely availability of critical materials in case of national emergency, the Contractor may order his subcontractors to proceed with fabrication of the same earlier than required by normal sequence of construction. In the event storage facilities are not available on the site or at the source of fabrication, the Owner will endeavor to provide such storage space as may be available to care for same. Where this is necessary, the Contractor shall be paid for all stored material on the Owner's property or on the properties approved by the Owner upon approval of certified invoices. It shall be the Contractor's obligation to pay for all handling costs and damage to this material. The Contractor shall protect this property against damage.

4.6 TAXES

- 4.6.1 The Bidder shall include in his proposal and make payment of all Federal, State, County and Municipal taxes including Michigan State Sales and Use Taxes, now in force or which may be enacted during the progress and completion of the work covered.

4.7 PERMITS, FEES AND NOTICES

- 4.7.3 The Contractor shall pay highway or DPW fees for damages to sidewalks, streets, or other public property or to any public utilities.

- 4.7.4 Permits and licenses of a temporary nature necessary for the execution of the work shall be secured and paid for by the Contractor.

- 4.7.5 **Except for the General Building Permit (which is not required), the Contractor shall secure and pay for all other required permits, including the following:**

Electrical	-	State of Michigan
Plumbing	-	State of Michigan
Mechanical	-	State of Michigan
Elevator-		City of Detroit

- 4.7.6 The Contractor shall secure certificates of inspection and of occupancy that may be required by authorities having jurisdiction over the work. These certificates shall be delivered to the Architect upon completion of the work.

4.9 SUPERINTENDENT

- 4.9.2 The Contractor shall give sufficient supervision to the work, using his best skill and attention. He shall carefully study and compare all drawings, specifications, and other instructions, and shall at once report to the Architect any error, inconsistency, or omission which he may discover, but he shall not be held responsible for their existence or discovery.

- 4.9.3 The Contractor's superintendent shall periodically inspect the entire project to make certain that all of the stipulations of all of the articles of the General Conditions are being observed.

4.12 DRAWINGS AND SPECIFICATIONS AT THE SITE

- 4.12.1.1 Refer to Paragraph 4.12.1, of A.I.A. General Conditions of the Contract for Construction. Modify the last sentence of this paragraph to read:

"The Drawings, marked to record all changes made during construction, shall be incorporated in the Contractor's 'Informational Package'."

- 4.12.2 As a basic and interim step for the fulfillment of the "Informational Package", accurate records of all non-structural underground and concealed work shall be kept, including, but not limited to, all piping, conduit, equipment, and drainage and tunnel work. In addition, such records shall be available for review during various steps of the project.

4.13 SHOP DRAWINGS AND SAMPLES

- 4.13.9 Immediately before and as a condition of substantial completion, the Contractor shall provide the Owner an "Informational Package" and instructional sessions on the operation, maintenance, and service of the facility. The "Informational Package" shall include:

1. One (1) set of transparency (sepia) of the approved shop drawings and descriptive material submitted during construction. Any shop documents unobtainable in sepia shall

be supplied in three (3) sets.

2. One (1) set of transparency (sepia) of constructional shop drawings with all installation revisions incorporated to reflect the as-built condition. Examples of constructional shop drawings are dimensioned conduit, piping and ductwork layout drawings.
3. Three (3) sets of instructional manuals on the installation, operation, maintenance and service of equipment and systems, including parts lists.

Examples of Specific Information Required:

1. Electrical
 - a. Conduit layout of light, power, and special systems, indicating dimensionally the locations and size of runs; circuit grouping and conductor size and number in conduit runs.
 - b. System description and elementary diagrams, connection and interconnection diagrams, and device internal diagrams.
2. Mechanical
 - a. Piping and ductwork layout indicating dimensionally the location and size of the runs.
 - b. Description and diagrams of control systems.

Following the submittal of the "Informational Package", the Contractor shall schedule and provide, at the Owner's convenience, instructional sessions for Owner's personnel to acquaint them with the operation, maintenance, and service of the system.

3. Elevators
 - a. Elementary diagrams and description of sequence of operation of the system control components, connection and interconnection diagrams, and device internal diagrams.

ARTICLE 5 - SUBCONTRACTORS

- 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK
- 5.2.3 Delete Article 5.2.3 in its entirety.
- 5.2.4 Delete Article 5.2.4 in its entirety.

ARTICLE 7 - MISCELLANEOUS PROVISIONS (Revised 6-13-2011)

- 7.5 PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND
- 7.5.1 The successful Bidder will be required to furnish a Performance Bond and Labor and Material Payment bond in an amount equal to 100% of the contract award amount, and include such cost in the Proposal, complying with the laws of the State of Michigan. The graduated formula no longer applies.
- A. Performance Bond and Labor and Material Payment Bond shall be from a surety company acceptable to the Owner and made payable as follows:
- (1) A Labor and Material Payment bond for 100% of the contract award amount to the Board of Governors of Wayne State University, and guaranteeing the payment of all subcontractors and all indebtedness incurred for labor, materials, or any cause whatsoever on account of the Contractor in accordance with the laws of the State of Michigan relating to such bonds.
 - (2) A Performance bond for 100% of the contract award amount to the Board of Governors of Wayne State University to guarantee and insure the completion of work according to the Contract.

B. The only acceptable Performance Bond shall be the AIA A312 – 2010.

- C. The Contractor shall include with his bid evidence of his ability to obtain a Performance Bond in the amount of 100% of the bid amount, and in accordance with the terms and conditions outlined in this section, Such evidence shall be project specific and shall be submitted on a form provided by the Surety or Agent thereof.

7.7 ROYALTIES AND PATENTS**7.7.1 Indemnification and Hold Harmless (*Revised 2-2015*).**

To the fullest extent permitted by law, the Contractor shall hold harmless, defend, and indemnify the Board of Governors of Wayne State University, the University, the Architect and Architect's Consultants, and officers, employees, representatives and agents of each of them, from and against any and all claims or losses arising out of or alleged to be resulting from, or relating to (1) the failure of the Contractor to perform its obligations under the Contract or the performance of its obligation in a willful or negligent manner; (2) the inaccuracy of any representation or warranty by the Contractor given in accordance with or contained in the Contract Documents; and (3) any claim of damage or loss by any subcontractor, or supplier, or laborer against the University, the Architect or the Architect's consultants arising out of any alleged act or omission of the Contractor or any other subcontractor, or anyone directly or indirectly employed by the Contractor or any subcontractor.

The Contractor shall also be liable for and hereby agrees to pay, reimburse, fully indemnify and hold the University, the Architect and Architect's Consultants, harmless from and against all costs and expenses of every nature (including attorney fees and expenses incident thereto) incurred by the University in collecting the amounts due from the Contractor, or otherwise enforcing its rights, under the indemnification described in this Article.

7.9 INTEREST

- 7.9.1 Delete Article 7.9 in its entirety.

ARTICLE 8 - TIME**8.1 DEFINITIONS**

- 8.1.3 The Date of Substantial Completion of the Work is the Date certified by the Architect when construction of the entire work is sufficiently complete, in accordance with the Contract Documents, so the Owner may occupy the Work for the use for which it is intended. It is the beginning date for the guarantees on all the Project Work.

8.3.5 LIQUIDATED DAMAGES

It is understood that if said Contract is not completed within the time specified in the Contract plus any extension of time thereto, the Contractor shall pay Liquidated Damages to the Owner as set forth in Article 11 of the Agreement between Contractor and Owner for Construction.

ARTICLE 9 - PAYMENT AND COMPLETION**9.3 PROGRESS PAYMENTS**

- 9.3.1 On or before the 20th day of each month, the Contractor shall submit to the Architect on the Owner's Standard Form, a written application for payment showing the proportionate value of the work installed to date from which shall be deducted, a reserve of 10% and all previous payments, and the balance of the amount as approved by the Architect shall be due and payable to the Contractor on or about the 15th day of the succeeding month.

- 9.3.2.2 No payments will be made because of materials or equipment stored off the site, except as provided for in Subparagraph 4.4.5 of the Supplementary General Conditions or other special cases the Owner may approve.

9.6 FAILURE OF PAYMENT

9.6.1 Delete Article 9.6 in its entirety.

ARTICLE 11 - INSURANCE (Revised 2-06-2015)

11.1 CONTRACTOR'S LIABILITY INSURANCE

11.1.2 The insurance required by Subparagraph 11.1.1 shall be written for not less than any limits of liability specified herein, or required by law, whichever is greater, and shall include contractual liability insurance as applicable to the Contractor's obligations under Paragraph 4.18.

During the life of the Contract, the Contractor shall maintain the following types of insurance:

A. General Requirements

<u>Type of Insurance</u>	<u>Minimum Requirement</u>
Commercial General Liability (CGL) Contractor shall maintain commercial general liability (CGL) CGL insurance shall be written on Insurance Services form CG 00 01 (or substitute form providing equivalent coverage) and shall cover liability arising from premises, operation, independent contractors, products-completed operation, and personal injury, contractual liability broad form property damage liability, products and completed operations coverage and X,C,U (explosion, collapse, underground) hazards.	\$1,000,000 combined single limit per occurrence \$2,000,000 aggregate Umbrella Liability per occurrence and in the annual aggregate of \$5,000,000.
Commercial Automobile Liability (CSL) (including hired and non-owned vehicles)	\$1,000,000 combined single limit
Workers' Compensation (Employers' Liability)	Statutory-Michigan \$500,000
Professional Liability insurance This limit shall be dedicated to the risks of Professional Liability and it shall not be combined with limits of any other coverages such as Environmental/Pollution General Liability, or Umbrella Liability unless otherwise approved by the Owner. Coverage shall be for the benefit of the Contracting or Design- Build entity, its principles, Employees, affiliates, agents, and partners-whether joint or several. It is presumed that this insurance will be Claims Made, and therefore must have a Retro-active date prior to the performance of any work for the Owner, whether or not such work is under contract or purchase order. This insurance will be placed with an insurer licensed to do business in the State of Michigan and rated no less than A X; by AM Best	\$500,000 per Occurrence Per Occurrence and in the Aggregate annually.

B. Maximum Acceptable Deductibles

<u>Type of Insurance</u>	<u>Maximum Deductible</u>
Comprehensive General Liability	\$5,000
Fire Legal Liability	\$5,000

Comprehensive Automobile Liability	-0-
Workers' Compensation	-0-
Property - All Risk	\$ 500

- 11.1.3 The Board of Governors, Wayne State University, shall be named as an additional insured but only with respect to accidents arising out of the performance of said contract. The contractor shall prepare a certificate of insurance which shall name the "Office of Risk Management; 5700 Cass Avenue" as the Wayne State University certificate holder.
- 11.1.3.1 The Contractor shall either 1) require each of his Subcontractors to procure and to maintain during the life of his subcontract, Subcontractors' Comprehensive General Liability, Automobile Liability and Property Damage Liability Insurance of the type and in the same amounts as specified in the Subparagraph, or 2) insure the activity of his subcontractors in his own policy.
- 11.2 OWNER'S LIABILITY INSURANCE
- Delete Article 11.2 in its entirety.
- 11.3 PROPERTY INSURANCE
- Delete Article 11.3 in its entirety and replace with the following:
- 11.3.1 The Contractor shall purchase and maintain property insurance upon the entire work at the site to the full insurable value thereof. This insurance shall include the interests of the Owner, the Contractor, Subcontractors, and sub-subcontractors in the work and shall insure against the perils of Fire, Extended Coverage, Vandalism, and Malicious Mischief.
- 11.3.2 The Owner and Contractor waive all rights against each other for damages caused by fires or other perils to the extent covered by insurance provided under Subparagraph 11.3.1. The Contractor shall require similar waivers by Subcontractors and sub-subcontractors in accordance with Clause 5.3.1.5.
- 11.3.3 Insurance must be issued by an insurance company with an "A rating as denoted in the AM Best Key Rating Guide".

ARTICLE 12 - CHANGES IN THE WORK

- 12.1 CHANGE ORDERS
- 12.1.8 Percentage markups in pricing under Subparagraphs 12.1.3.1, 12.1.3.3, and 1.2.4 shall be as limited in the Contract Documents. Unit price of Subparagraph 12.1.3.2 shall represent total unit cost to the Owner and shall include the Contractor's markup for overhead and profit.

ARTICLE 14 - TERMINATION OF THE CONTRACT

- 14.1 TERMINATION BY THE CONTRACTOR
- 14.1.1 If the work is stopped for a period of thirty days under any order of any court or other public authority having jurisdiction, or as a result of any act of government, such as a declaration of a national emergency making materials unavailable, through no act or fault of the contract or a subcontractor or their agents or employees or other persons performing any of the Work under a contract with the contractor, then the contractor may, upon seven days' written notice to the Owner and the Architect, terminate the contract and recover from the Owner payment for all Work executed and for any proven loss sustained upon any materials, equipment, tools, construction equipment, and machinery, including reasonable profit and damages.

ARTICLE 15 - ADDITIONAL CONDITIONS

- 15.1 SUBSTITUTION OF MATERIALS AND EQUIPMENT
- 15.1.1 Whenever a material, article, or piece of equipment is identified on the Drawings or in the Specifications by reference to manufacturers' or vendors' names, trade names, catalog numbers, or the like, it is so identified for the purpose of establishing a standard, and any material, article, or piece of equipment of other

manufacturers or vendors, which will perform adequately the duties imposed by the general design will be considered equally acceptable provided the material, article, or piece of equipment so proposed is, in the opinion of the Architect, of equal substance, appearance, and function. It shall not be purchased or installed by the Contractor without the Architect's written approval.

15.2 NON-DISCRIMINATION PROVISION AND WAGE AND HOUR ACT

15.2.1 During the performance of this contract, the Contractor agrees as follows:

15.2.1.1 The Contractor shall not discriminate against any employee or applicant for employment because of sex, race, creed, color, age, or national origin. The Contractor will take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their sex, race, age, creed, color, or national origin.

15.2.1.2 Such action shall include but not be limited to, the following: employment; upgrading; demotion; or transfer; recruitment or recruitment advertising; layoff or terminations; 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 to be provided setting forth the provisions of this non-discrimination clause.

15.2.1.3 The Contractor will, in all solicitations, or advertisements for employees, placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to sex, race, creed, color, age or national origin.

15.2.1.4 The Contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice advising the labor union or worker's representative of the Contractor's commitments under Section 202 of Executive Order No. 11246 of October 27, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

15.2.1.5 The Contractor will comply with all provisions of the Executive Order No. 11246 of October 27, 1965, and of the rules, regulations and relevant orders of the Secretary of Labor or other government agency or authority having jurisdiction.

15.2.1.6 The Contractor will furnish all information and reports required by Executive Order No. 11246 of October 27, 1965, and by the rules, regulations, and orders of the Secretary of Labor or other government agency or authority having jurisdiction, and will permit access to his books, records, and accounts by the administrative agency and the Secretary of Labor for the purposes of investigation to ascertain compliance with such rules, regulations and orders.

15.2.1.7 In the event of the Contractor's noncompliance with the non-discrimination clauses of this contract, or with any of the said rules, regulations, or orders, this Contract may be canceled, terminated or suspended in whole or in part, and the Contractor may be declared ineligible for further University contracts or federally-assisted contracts in accordance with procedure authorized in Executive Order No. 11246 of October 27, 1965, or by rule, regulation, or order of the Secretary of Labor or other government agency or authority having jurisdiction.

15.2.1.8 The Contractor will include in the provisions of Subparagraph 15.2.1.1 through 15.2.1.8 in every subcontract or purchase order unless exempted by rules, regulations or orders of the President's Committee on Equal Employment Opportunity issued pursuant to Section 204 of Executive Order No. 11246 of September 14, 1965, so that provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved as a result of such direction by the administering agency, the Contractor may request the United States to enter into such litigation to protect the interest of the United States.

15.3 COMPLIANCE WITH COPELAND ANTI-KICKBACK ACT AND REGULATIONS

15.3.1 The Contractor shall comply with the Copeland Anti-Kickback Act and Regulations of the Secretary of Labor

(29CFR, Part 3) which are herein incorporated by reference.

15.4 PREVAILING WAGES

- 15.4.1 Contractors and subcontractors shall pay all mechanics and laborers, including apprentices and trainees, no less than the wage and fringe benefit rates prevailing in the locality in which the work is performed. Wage and fringe benefit rates are determined by the Federal Government Department of Labor.
- 15.4.2 Classifications not provided in the schedule shall be determined prior to the award of the contract and shall be no less than the wage and fringe benefit rates determined by the Federal Department of Labor.
- 15.4.3 Contractors and subcontractors shall adhere to the ratios of apprentices to journey workers as determined by the Federal Department of Labor.
- 15.4.4 Contractors and subcontractors shall keep a copy of the prescribed wage and benefit rates posted at the construction site in a conspicuous place.
- 15.4.5 Contractors and subcontractors shall keep an accurate record of the name, occupation, and the actual benefits paid to each mechanic or laborer for the contract. This record shall be made available for reasonable inspection by the Federal Department of Labor and the Owner.

DRAWINGS

The Technical Specifications dated **August 22, 2016** and the following List of Drawings represent the scope of work as defined in the Contract Documents from Article 4.

DRAWINGS

Drawing No.:	Description
01 – S000	Title Sheet
02 – S001	General Notes
03 – S002	Special Inspection Requirements
04 – S003	Level 1 Composite Plan
05 – SD101	Level 1 Demolition Plan
06 – S101	Level 1 Loading Dock New Work Plan
07 – S101-R	Structural Repair Plan
08 – S201	Sections & Details
09 – S202	Repair Details

GENERAL REQUIREMENTS**GENERAL****A. CONTRACTOR'S RESPONSIBILITY**

It is not the responsibility of the Architect/Engineer or Owner's Representative to notify the Contractor or subcontractors when to commence, to cease, or to resume work; nor in any way to superintend so as to relieve the Contractor of responsibility or of any consequences of neglect or carelessness by him or his subordinates. All material and labor shall be furnished at times best suited for all Contractors and subcontractors concerned, so that the combined work of all shall be properly and fully completed on the date fixed by the Contract.

The Contractor shall be responsible for all items contained in both the specifications and on the drawings for all trades. He shall be responsible for the proper division of labor according to current labor union agreements regardless of the division of responsibility implied in the contract documents.

B. CODES AND STANDARDS

Reference to standard specifications for workmanship, apparatus, equipment and materials shall conform to the requirements of latest specifications of the organization referenced, i.e., American Society for Testing Materials (ASTM), Underwriters Laboratories, Inc. (UL), American National Standards Institute, Inc. (ANSI), and others so listed in the Technical Specifications.

C. PERMITS, FEES AND NOTICES

See Supplementary General Conditions.

D. MEASUREMENTS

Before proceeding with each Work Item, Contractor shall locate, mark and measure any quantity or each item and report quantities to Engineer. If measured quantities exceed Engineer's estimate, Contractor shall obtain written authorization to proceed from Owner before executing Work required for that Work Item.

Measurement of quantities for individual Work Items will be performed by Contractor and reviewed by Engineer. Coordinate measurements with inspection as required in Section "Coordination."

Cost of Work included in Work Item for quantities as indicated in Contract Documents shall be included in Base Bid.

1. Additions to or deductions from lump sum price for quantities of each Work Item added to or deducted from Work respectively shall be at unit prices indicated in Bid Form and shall constitute payment or deductions in full for all material, equipment, labor, supervision and incidentals necessary to complete Work.

E. CONTRACTOR'S MEASUREMENTS

Before ordering material, preparing Shop Drawings, or doing any work, each Contractor shall verify, at the building, all dimensions which may affect his work. He assumes full responsibility for the accuracy of his figures. No allowance for additional compensation will be considered for minor discrepancies between dimensions on the drawings and actual field dimensions.

F. CONTINUITY OF SERVICE (*Revised 3-26-2012*)

Continuity of all existing services in the building shall be maintained throughout the construction period. Where it is necessary to tie into the existing electrical service, water or waste systems, it shall be done as directed by the Architect/Engineer. This Contract shall also provide temporary lines or bypasses that may be required to maintain continuous service in the building. All utility shutdowns must be approved by the Owners Representative / Project Manager, not less than **7 business days** prior to the event, so that proper notification can be posted.

G. SUBMITTALS

All submittals (except Shop Drawings) and samples required by the Specifications shall be submitted in triplicate unless otherwise specified for a particular item under an individual Specification Section.

Each sample shall be clearly identified on a tag attached, showing the name of the Project Consultant, the project number and title, the names of the Contractor, manufacturer (and supplier if same is not the manufacturer), the brand name or number identification, pattern, color, or finish designation and the location in the work.

Each submittal shall be covered by a transmittal letter, properly identified with the project title and number and a brief description of the item being submitted.

Contractor shall be responsible for all costs of packing, shipping and incidental expenses connected with delivery of the samples to the Project Consultant or other designated address.

If the initial sample is not approved, prepare and submit additional sets until approval is obtained.

Materials supplied or installed which do not conform to the appearance, quality, profile, texture or other determinant of the approval samples will be rejected, and shall be replaced with satisfactory materials at the Contractor's expense.

H. GENERAL/STANDARD ELECTRONIC EQUIPMENT AND INFRASTRUCTURE REQUIREMENTS (*Revised 11-2008*)**1. Compliance with WSU Standards for Communications Infrastructure**

- A. All applicable work, products, materials and methods shall comply with the latest version of the "WSU Standards for Communications Infrastructure" except as where noted.
- B. This document is available at the following website/URL: <https://computing.wayne.edu/docs/wsu-communications-standards.pdf>

2. Automation System Program Code

- A. All automation system uncompiled and compiled program codes, source codes, custom modules, graphical user interface screen shots and any other automation system programming data and material (Program Code) shall be provided to the UNIVERSITY in hard copy and on CD Rom in an unencrypted format acceptable to the UNIVERSITY.
- B. Copyright for the Program Code shall be assigned to the UNIVERSITY for purposes of system maintenance.

PROTECTION OF OCCUPANCY (*Revised 3-2006*)**A. FIRE PRECAUTIONS**

Take necessary actions to eliminate possible fire hazards and to prevent damage to construction work, building materials, equipment, temporary field offices, storage sheds, and other property.

During the construction, provide the type and quantity of fire extinguishers and fire hose to meet safety and fire prevention practices by National Fire Protection Association (NFPA) Codes and Standards (available at <http://www.nfpa.org/>)

In the event that construction includes "hot work", the contractor shall provide the Owner's Representative with a copy of their hot work policy, procedures, or permit program. No hot work activity (temporary maintenance, renovation, or construction by operation of a gas or electrically powered equipment which produces flames, sparks or heat that is sufficient to start a fire or ignite combustible materials) shall be performed until such documents are provided. During such operations, all highly combustible or flammable materials shall be removed from the immediate working area, and if removal is impossible, same shall be protected with flame retardant shield.

Not more than one-half day's supply of flammable liquids such as gasoline, spray paint and paint solvent shall be brought into the building at any one time. Flammable liquids having a flash point of 100 degrees F. or below which must be brought into the building shall be confined in an Underwriters Laboratories (UL) labeled safety cans. The bulk supply of flammables shall be stored at least 75 feet from the building and other combustible materials. Spigots on drums containing flammable liquids are prohibited on the project site. Drums shall be equipped with approved vented pumps, and be grounded and bonded.

Only a reasonable working supply of combustible building materials shall be located inside the building.

All oil-soaked rags, papers, and other similar combustible materials shall be removed from the building at the close of each day's work, or more often if necessary, and placed in metal containers, with self-closing lids.

Materials and equipment stored in cardboard cartons, wood crates or other combustible containers shall be stored in an orderly manner and accessibly located, fire-fighting equipment of approved types shall be placed in the immediate vicinity of any materials or equipment stored in this type of crate or carton.

No gasoline, benzene, or like flammable materials shall be poured into sewers, manholes, or traps.

All rubbish shall be removed from the site and legally disposed of. Burning of rubbish, waste materials or trash on the site shall not be permitted.

The contractor shall be responsible for the conduct of employees relative to smoking and all smoking shall be in the area designated by the Architect/Engineer.

B. GENERAL SAFETY AND BUILDING PRECAUTIONS

Provide and maintain in good repair barricades, railings, etc., as required by law for the protection of the Public. All exposed material shall be smoothly dressed.

At dangerous points throughout the work environment provide and maintain colored lights or flags in addition to above guardrails.

Isolate Owner's occupied areas from areas where demolition and alteration work will be done, with temporary, dustproof, weatherproof, and fireproof enclosures as conditions may require and as directed by the Architect/Engineer.

Cover and protect furniture, equipment and fixtures to remain from soiling, dust, dirt, or damage when demolition work is performed in rooms or areas from which such items have not been removed.

Protect openings made in the existing roofs, floors, and other construction with weatherproof coverings, barricades, and temporary fire rated partitions to prevent accidents.

Repair any damage done to existing work caused by the construction and removal of temporary partitions, coverings, and barricades.

The Contractor will be held responsible for all breakage or other damage to glass up to the time the work is completed.

Provide protection for existing buildings, interior and exterior, finishes, walls, drives, landscaping, lawns (see below), etc. All damages shall be restored to match existing conditions to the satisfaction of the Architect/Engineer.

The Contractor and Owner will define the anticipated area of lawn damage at the project Pre-Construction Meeting. Whether the lawn is sparse or fully developed, any lawn damaged due to the Contractor's work will be replaced with sod by the University. The University's unit cost of \$10.00 per square yard and landscaping at a rate of 1.5 times the cost of the sod repairs, the full cost of which will be assessed against the Contractor. At the completion of the project, a deductive Change Order reflecting this cost will be issued.

The Contractor is to include an allowance in his bid for this corrective work.

C. INTERFERENCE WITH OWNER'S OPERATIONS

The Owner will be utilizing the Building Facilities to carry on his normal business operation during construction. The Contractor shall schedule performance of the work necessary to complete the project in such a way as to interfere as little as possible with the operation during construction. The Contractor shall schedule performance of the work necessary to complete the project in such a way as to interfere as little as possible with the operation of the Owner.

Work which will interfere with the Owner's occupancy, including interruptions to the Owner's mechanical and electrical services, and essentially noisy operations (such as jackhammering) shall be scheduled in advance. The schedule of alterations shall be approved by the Architect/Engineer and the work shall be done in accordance with the approved schedule.

It is understood that the work is to be carried through to completion with the utmost speed consistent with good workmanship and to meet the construction schedule.

The Contractor shall begin work under the Contract without delay upon receipt of the fully-executed contract and shall substantially complete the project ready for unobstructed occupancy and use of the Owner for the purposes intended within the completion time stated in the contract.

The Contractor shall, immediately upon award of contract, schedule his work and expedite deliveries of materials and performance of subcontractors to maintain the necessary pace to meet the construction schedule.

CONTRACTOR'S REPRESENTATION AND COORDINATION

A. FIELD SUPERINTENDENT

Contractor shall assign a full time project manager/superintendent for the duration of the project. This person shall be experienced and qualified in all phases of the work and shall be present at the site during Contractor's working hours. The project manager shall have Contractor's full authority to represent Contractor in all routine operations including payment, changes to the work, and scheduling. Contractor shall not re-assign this individual without prior written permission of the Owner.

B. MEETINGS

When directed by the Architect/Engineer, meetings shall be held for the purpose of coordinating and expediting the work. The invited contractors or subcontractors will be required to have qualified representatives at these meetings, empowered to act in their behalf.

C. COORDINATION

The Contractor shall also provide a staff adequate to coordinate and expedite the work properly and shall at all times maintain competent supervision of its own work and that of its subcontractors to insure compliance with contract requirements.

The Contractor shall be solely responsible for all construction means, methods, techniques, sequences, and procedures and for coordinating all portions of the work under the Contractor.

D. CONSTRUCTION SCHEDULE

The Construction Schedule shall be prepared after the award of contract. Soon after, a pre-construction meeting is held with the Owner and the Architect/Engineer to determine the areas to which the Contractor will be allowed access at any one time.

The Contractor is alerted to the fact that areas in which he will be working will be occupied by students and employees of the University as well as the general public. The Contractor's access, to and from the project site, will be confined to limited areas so as not to unduly disrupt the normal activities of the University.

TEMPORARY FACILITIES

A. GENERAL

The following temporary facilities descriptions represent standard conditions. Verify accuracy with Architect/Engineer at time of bids.

B. CONTRACTOR'S OFFICE

Provide field offices as required. Locate temporary field offices on site where directed by Architect/Engineer.

Appearance and location of field offices shall be approved by the Architect/Engineer.

Provide for all other administrative facilities and storage off the Owner's property.

C. STORAGE OF MATERIALS

All materials shall be stored in areas designated by the Architect/Engineer. All stored materials shall be arranged for the minimum disruption to occupants and to allow full access to and throughout the building. Materials stored outdoors shall be neat and orderly and covered to prevent damage or vandalism.

D. PARKING

1. GENERAL

University parking regulations will be strictly enforced.

Maintain Owner's parking areas free of dirt and debris resulting from operations under the contract.

2. STANDING AND UNLOADING/LOADING VEHICLES

All Contractors are to call Wayne State University Public Safety at 577-2222, and give at least 24 hours advance notice that they have vehicles that must be at the job site.

Vehicles will be permitted at the project site only as long as the vehicles are needed for loading/unloading, and must be immediately moved upon completion.

All unauthorized and/or unattended standing vehicles will be subject to ticketing and removal by University Police. Towed vehicles may be reclaimed by calling 577-2222, and paying any assessed charges.

3. COMPLIMENTARY PARKING

There is no complimentary parking for Contractor's employee vehicles.

4. WAYNE STATE UNIVERSITY PUBLIC/STUDENT PARKING AREAS

Public Parking, on a first-come first-served basis is available. Contact the office of the One Card System, at 313.577.9513 for information on availability of parking on a contractual basis.

E. TOILET FACILITIES

The Owner's designated existing toilet facilities may be used by workers on the project. Contractor shall maintain such facilities in a neat and sanitary condition.

F. TELEPHONE USE

If required, the Contractor shall provide and pay for a temporary telephone within the building for his use and that of his subcontractors.

No use of the Owner's telephone (except pay telephones) will be permitted.

G. ACCESS DEVICES

The Contractor shall furnish and maintain temporary hoists, ladders, railings, scaffolds, runways, and the like as required for safe, normal access to the permanent construction until the permanent facilities are complete. Each trade shall furnish such additional means of access as may be required for the progress and completion of the work. Such temporary access devices shall meet all applicable local, state, and federal codes and regulations.

H. HEAT AND VENTILATION

Provide cold weather protection and temporary heat and ventilation as required during construction to protect the work from freezing and frost damage.

Provide adequate ventilation as required to maintain reasonable interior building air conditions and temperatures, to prevent accumulation of excess moisture, and to remove construction fumes.

Tarpaulins and other materials used for temporary enclosures. Coverings and protection shall be flameproofed.

I. WATER SERVICE

Sources of water are available at the site. The Owner will pay for reasonable amounts of water used for construction purposes.

The Contractor shall provide, at the earliest possible date, temporary connections to the water supply sources and maintain adequate distribution for all construction requirements. The Contractor shall protect sources against damage.

Methods of conveying this water shall be approved by the Architect/Engineer and shall not interfere with the Owner's operations.

J. ELECTRICAL SERVICES

All charges for reasonable amounts of electrical power energy used for temporary lighting and power required for this work will be paid by the Owner.

The Contractor shall provide and maintain any temporary electrical lighting and power required for this work. At the completion of the work, all such temporary electrical facilities shall be removed and disposed of by the Contractor.

Temporary lighting and power shall comply with the regulations and requirements of the National Electrical Code

INSPECTIONS AND TESTS

The Architect/Engineer shall at all times have access to the work wherever it is in preparation or in progress and the Contractor shall provide proper facilities for such access and for observation.

No failure of the Architect/Engineer, during the progress of the work, to discover or reject materials or work not in accordance with the Contract Specifications and Drawings shall be deemed an acceptance thereof nor a waiver of defects therein. Likewise, no acceptance or waiver shall be inferred or implied due to payments made to contractor or by partial or entire occupancy of the work, or installation of materials that are not strictly in accordance with the Contract Specifications and Drawings.

Where tests are specifically called for in the Specifications, the Owner shall pay all costs of such tests and engineering services unless otherwise stated in the contract.

Where tests are not specifically called for in the Specifications, but are required by the Architect/Engineer or Consultant, the Owner shall pay all costs of such tests and engineering services unless the tests reveal that the workmanship or materials used by the Contractor are not in conformity with the Drawings, Specifications, and/or approved shop drawings. In such event, the Contractor shall pay for the tests, shall remove all work and materials so failing to conform and replace with work and materials that are in full conformity.

CLEAN-UP

The Contractor shall at all times keep the Owner's premises and the adjoining premises, driveways and streets clean of rubbish caused by the Contractor's operations and at the completion of the work shall remove all the rubbish, all of his tools, equipment, temporary work and surplus materials, from and about the premises, and shall leave the work clean and ready for use. If the contractor does not attend to such cleaning immediately upon request, the Architect/Engineer may cause such cleaning to be done by others and charge the cost of same to the Contractor.

The Contractor will be responsible for all damage from fire that originates in, or is propagated by, accumulations of rubbish or debris.

All rubbish and debris shall be disposed of off the Owner's property in an approved sanitary landfill site. No open burning of debris or rubbish will be permitted. Job site shall be left neat and clean at the completion of each day's operation.

PROJECT CLOSE-OUT

A. RECORD DRAWINGS

At beginning of job, provide one copy of Working Drawings, and record changes, between Working Drawings and "As Built", including changes made by Addenda, Change Orders, Shop Drawings, etc. These shall be kept up to date. Update to indicate make of all mechanical and electrical equipment and fixtures installed. Keep these Record Prints in good condition and available for inspection by the Architect/Engineer.

Upon completion of the job, turn over to the Architect/Engineer Record Prints of Working Drawings showing all job changes.

B. OPERATING AND MAINTENANCE DATA

Prepare and furnish to the Architect/Engineer three (3) bound copies of "Operating and Maintenance Manual" on all equipment installed under this Contract.

Manual shall include copies of all Manufacturers' "Operating and Service Instructions", including Parts List, Control Diagrams, Description of Control Systems, Operating, Electrical Wiring, and any other information needed to understand, operate and maintain the equipment. The names and addresses of all subcontractors shall be included. These instructions shall be custom-prepared for this job -- catalog cuts will not be accepted. Equipment shall be cross-referenced to Section of Specifications and to location shown and scheduled on drawings.

Include Test-Adjust-Balance Report in the Manual.

C. FINAL INSPECTION

Secure final inspections from the State of Michigan as soon as the work is completed and immediately submit such Certificates to the Architect/Engineer.

D. GUARANTEES (See Sections 00510 and 01781)

Guarantees on material and labor from the General Contractor and his subcontractors shall be as required in Sections 00510 and 01781.

E. SWORN STATEMENT AND WAIVER OF LIENS (*revised 4-11-2012*)

Prior to final payment, the General Contractor shall provide a Contractor's Sworn Statement and Full Unconditional Waivers of Liens from all subcontractors for material and labor and from all suppliers who provide materials exceeding \$1,000. Sworn Statements and signed waivers from all Subcontractors must accompany Pay Applications or they will be returned for such documentation prior to approval.

ASBESTOS HAZARD

- A. The contractor shall not start any work in any area that has not been inspected for asbestos by the Owner's Industrial Hygiene Department, or a qualified representative of the Owner and approval is given for work to be done. If asbestos is found, safety measures as recommended by the Owner's Industrial Hygiene Department, or a qualified representative of the

Owner, shall be completed, or approval given for work to be done before work is started. The contractor shall not perform any asbestos removal or containment work under the contract.

KEYS

- A. The Owner shall provide the contractor keys on loan to have access to the various spaces in order to complete the contract. Contractor will sign for and be responsible for each key on loan, returnable to Owner upon completion of the contract. In case of any lost keys, the Owner will backcharge the contract \$250.00 for each core change. In the event that a Contractor wants access to a secured area, he shall give the Owner a minimum 48-hour notice.

SUMMARY OF WORK

SUMMARY OF WORK

PROJECT: Student Center Building Loading Dock Leak Repairs

WSU PROJECT NO.: 034-282276

PROJECT MANAGER: Chrystal Camilleri

1. EXAMINATION

The Contractor shall visit the site and become familiar with conditions under which he will be working. Also meet with the project manager and review site access, storage areas, etc.

2. Description of Work – Project includes **Remove/replace the loading dock pavement, concrete wall, repair steel beams, remove/replace waterproofing, and repair interior finishes.**

3. The building is located at

Wayne State University
5221 Gullen Mall, Detroit
Detroit, Michigan 48202

PROJECT MANUAL

**WAYNE STATE UNIVERSITY
DETROIT, MICHIGAN**

**STUDENT CENTER BUILDING
LOADING DOCK REPAIRS
DETROIT, MICHIGAN**

BID DOCUMENTS

AUGUST 1, 2016

**WSU PROJECT # 034-282276
DNCE PROJECT NO. 7877-800**

PROJECT	STUDENT CENTER BUILDING – LOADING DOCK REPAIRS DETROIT, MICHIGAN
OWNER	WAYNE STATE UNIVERSITY FACILITIES PLANNING AND MANAGEMENT OFFICE 5454 CASS DETROIT, MICHIGAN 48202
STRUCTURAL ENGINEER	DESAI / NASR CONSULTING ENGINEERS, INC. 6765 DALY ROAD WEST BLOOMFIELD, MICHIGAN 48322
ARCHITECT	NEUMANN/SMITH ARCHITECTURE 400 GALLERIA OFFICENTRE, SUITE 555 SOUTHFIELD, MICHIGAN 48034

SECTION 01 1100 - SUMMARY OF WORK

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 PROJECT

- A. The Owner intends to renovate a part of an existing Building, and associated work, in Detroit, Michigan.
- B. The Owner will bid and monitor the Construction Work, and will retain the services of an inspection agency to inspect the work.
- C. All construction shall be phased so as to maintain Owner's operations. Refer to the Owner's bidding information for additional descriptions and requirements.
- D. The Work is being issued by the Architect / Engineer to the Owner and Contractor in a single General Contract Package.
- E. Lead Paint: This building was built prior to 1978, therefore the Contractor will assume that all existing painted surfaces may be contaminated and plan their work accordingly. Include within the Work any remediation efforts, removal efforts, abatement, testing, monitoring and disposal required to comply with all applicable, local, state and federal regulations.
 - 1. The Contractor is responsible for compliance with all requirements related lead containing paint.
 - 2. Personnel must wear appropriate personal protective equipment (PPE) as required by OSHA.
- F. In case of conflict between these Division 00 and 01 specifications and those provided by WSU, the WSU requirements shall govern.

1.03 CONTRACTS

- A. The Owner will solicit lump-sum proposals for the Work. The extent of work shall be fully described by the Contract Documents. Refer to the Owner's bidding information for additional descriptions and requirements.
- B. Work for the complete construction of the Project will be under a single General Contract awarded by the Owner.
 - 1. The successful General Contractor will manage the construction of the Project and assume responsibility for coordination, phasing, and monitoring of the Work.
- C. Important Notice to all Bidders and Contractors:
 - 1. The "Contract Documents", as defined in the General Conditions, include "The Drawings". Although Drawings are grouped and identified by classification of Work, the Contractor shall be responsible for his work as specified herein and as indicated on the Drawings.
 - 2. Contractors are also advised they are responsible for all Work shown in any of the documents and they must execute the Work of their trade on all drawings, not just the trade specific drawings.
 - a. Hence all architectural, structural, mechanical, plumbing, fire protection, electrical controls or security electronics work is not necessarily shown on the drawings which depict that specialty or particular area of work (i.e., plumbing may be on architectural drawings, etc.).
 - b. This means all contractors or subcontractors of any tier, are responsible for all work specified or shown anywhere in the drawings and no additional monies will be allowed for work shown anywhere within the Contract Documents.
 - 3. Contractors are further advised they are to provide complete and functional systems wherever it is reasonably inferable that the drawing or specification INTENDS to depict the same.

- a. Example: A lavatory in a bathroom which is shown on the architectural drawings shall be plumbed for hot and cold domestic water and drain waste even if not shown on the plumbing drawings. A similar standard shall apply to all trades.
- 4. Contractors are directed to use indicated dimensions for determining material quantities and for other reasons. No additional monies will be allowed due to contractors using "Scaling Instruments" to determine material quantities or for other reasons.
- D. Related Sections
 - 1. Some sections of the Specifications (Divisions 01 through 49) may include a paragraph with this title.
 - 2. This paragraph is an aid to the Project Manual and is NOT INTENDED to include all sections which may be related. It is the Trade Contractor's obligation to coordinate all sections whether indicated under "Related Sections" or not.

1.04 OCCUPANCY BY OWNER

- A. The Owner reserves the right to occupy and to place and install equipment in completed areas of the building prior to Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the Work.
 - 1. Obtain a Certificate of Occupancy from local building officials and/or other authorities having jurisdiction prior to Owner occupancy.
 - a. Final Certificate of Occupancy shall be a complete and unencumbered Certificate. All fee's, if any, for inspections, testing, surveys, etc., shall be the responsibility of the Contractor.
 - 2. Prior to partial Owner occupancy, mechanical and electrical systems shall be fully operational. Upon occupancy, the Owner will operate and maintain mechanical and electrical systems serving occupied portions of the building.

1.05 CONTRACTOR USE OF PREMISES

- A. General: During the construction period the Contractor shall have full use of the Site for construction operations.
 - 1. The Contractor's use of the Site is limited only by the Owner's right to perform work or retain other contractors on portions of the Project.
 - 2. Construction noise on site will not be permitted on weekends, holidays, or before 9:00 am or after 5:00 pm on weekdays, unless authorized in writing by Owner.
- B. Limit use of premises to construction activities in areas indicated; allow for Owner occupancy and public use. Coordinate use under direction of Owner and Architect.
 - 1. Maintain legal, protected fire egress at all times.
 - 2. Move any stored materials, equipment or products, which interfere with operations of the Owner.
- C. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
- D. Due to site constraints resulting in limited lay-down area, all deliveries to the site must be "just-in-time".
- E. Locate hot tanks a minimum of 25 feet away from buildings.
- F. Submit safety plan and burn permit for welding operations prior to start of work. These items must comply with all applicable OSHA requirements and with Owner's Hot Work requirements.
- G. Keep driveways and entrances serving the premises clear and available to the Owner, Owner's employee's, and General Public at all times. Do not use these areas for parking or storage of materials. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.
 - 1. Provide access for emergency vehicles at all times.
 - a. Do not block or close roadways, or fire lanes without providing auxiliary and /or temporary access to Site for emergency vehicles. Provide Owner and local fire department minimum 48 hours notice.

- b. Fire hydrants shall remain accessible at all times.
- 2. Contractor's personnel shall park in designated areas only.
- H. Maintain the existing buildings in a weathertight condition throughout the entire construction period. Repair any damage caused by demolition operations. Take all precautions necessary to protect the building and occupants during demolition operations.
- I. There is no smoking allowed on campus at any time.

1.06 TEMPORARY FACILITIES AND CONTROLS

- A. Regulations: Comply with governing regulations, utility company requirements and recommendations for construction of temporary facilities including (but not necessarily limited to) code compliances, permits, inspections, testing and health and safety compliance.
- B. Standards: Comply with NFPA Code 241 "Building Construction and Demolition Operations", ANSI - A-10 Series Standards "Safety Requirements for Construction and Demolition".
- C. Temporary Site Access: Enter site only as directed by Owner. Arrange in advance with Owner for deliveries requiring other access.
 - 1. At conclusion of work remove all temporary construction and restore site to preconstruction condition.
 - 2. Do not allow vehicles to track mud, dirt or debris.
- D. Construction Parking: Park only within area designated by Owner. Control as required for orderly use.
 - 1. Do not permit parking on sidewalks, lawns or undesignated parking areas.
- E. The loads of all equipment used for the completion of this work must be approved by the Structural Engineer due to the location of occupied space below the loading dock.
- F. Storage: Store materials and equipment and stage operations only within site staging area.
 - 1. Suitably store materials so as not be exposed to weather where damage could result, or not invite tampering or theft. Storage is at Contractor's risk, except as provided under insurance.
- G. Barricades, Warning Signs and Lights: Comply with standards and code requirements for erection of adequate barricades. Paint with appropriate colors, graphics and warning signs to inform personnel and the public of the hazard. Provide lighting, including flashing red or amber lights, as required.
- H. Temporary Sanitary Facilities: Comply with governing regulations including safety and health codes. Install sanitary facilities in locations not visible to the general public.
 - 1. Existing toilet facilities on the floor undergoing renovation may be used by the contractor provided that they are regularly cleaned and maintained. Clean and restore toilet rooms at the completion of the project.
- I. Temporary Electric Power Service: Electric power will be made available for use by the Owner.
- J. Water: Water will be made available on-site for use by the Owner.
- K. Security: Do not allow unauthorized persons into construction areas. Carefully monitor and control all access to work areas. Lock all doors and gates when not in use and after working hours.
- L. Construction Aids: Provide scaffolding, ramps, runways, staging, cross-lot bracing, barriers, closures, platforms, swing stages and temporary partitions. Design, construction and maintenance of construction aids is sole responsibility of Contractor.
- M. Cleanup: Maintain the premises free of accumulation of waste material or rubbish caused by construction operations at all times. Remove all waste materials and rubbish on a daily basis. Remove all tools, construction equipment, machinery and surplus materials at completion of work.
 - 1. Provide dust control measures during demolition and construction, including wet saw-cutting of concrete.

- N. Safety: Comply with applicable requirements of OSHA, MIOSHA, EPA and any other government entity having jurisdiction.
- O. Winter Conditions: Provide all heating, snow removal, storage and protection of materials required to maintain construction operations through the winter as necessary.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION - NOT APPLICABLE

END OF SECTION 01 1100

SECTION 01 2300 - ALTERNATES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements governing Alternates.
 - 1. The Owner reserves the right to accept or decline alternates.
 - 2. The Owner reserves the right to accept, decline, and/or enter negotiations to modify Voluntary Alternates proposed by the Contractor and/or any subcontractor.

1.03 DEFINITIONS

- A. Definition: An alternate is an amount proposed by bidders and stated on the Bid Form for certain work defined in the Bidding Requirements that may be added to, or deducted from, the Base Bid amount if the Owner decides to accept a corresponding change in the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
 - 1. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate the Alternate into the Work. No other adjustments are made to the Contract Sum.

1.04 PROCEDURES

- A. Coordination: Modify or adjust affected adjacent Work as necessary to completely and fully integrate that Work into the Project.
 - 1. Include as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not mentioned as part of the Alternate.
- B. Notification: Immediately following the award of the Contract, notify each party involved, in writing, of the status of each alternate. Indicate whether alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.
- C. Execute accepted alternates under the same conditions as other Work of this Contract.
- D. Schedule: A "Schedule of Mandatory Alternates" is included at the end of this Section. Specification Sections referenced in the Schedule contain requirements for materials necessary to achieve the Work described under each alternate.
 - 1. Only principle items of Work are highlighted in each mandatory alternate. Include as part of each alternate, miscellaneous devices, appurtenances, and similar items incidental to or required for a complete installation whether or not mentioned as part of the alternate.
 - 2. Voluntary alternates, as proposed by the Bidder, are as shown on the Proposal Form submitted by such Bidder.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 SCHEDULE OF MANDATORY ALTERNATES

Alternate No. 1: Second Shift

- 1. Contract to be based on a 40 work day construction duration to achieve substantial completion. Provide alternate cost to accelerate work to complete full project scope in 30 work days.

END OF SECTION 01 2300

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for handling requests for substitutions made after award of the Contract.

1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Substitutions: Requests for changes in products, materials, equipment, and methods of construction required by Contract Documents proposed by the Contractor after award of the Contract are considered requests for "substitutions". The following are NOT considered substitutions:
 - 1. Substitutions requested by Bidders during the bidding period, and accepted prior to award of Contract, are considered as included in the Contract Documents and are not subject to requirements specified in this Section for substitutions.
 - 2. Revisions to Contract Documents requested by the Owner or Architect.
 - 3. Specified options of products and construction methods included in Contract Documents.
 - 4. The Contractor's determination of and compliance with governing regulations and orders issued by governing authorities.

1.04 REQUESTS FOR SUBSTITUTION

- A. Substitutions: For a period of 15 working days after Subcontract Award, Architect will consider written requests from Contractor for substitution of products. Requests received more than 15 working days after Subcontract award may be considered or rejected at the discretion of the Architect.
 - 1. Architect will consider substitutions after 15 days of Subcontract award only if one of the following conditions applies.
 - a. Specified products are no longer manufactured.
 - b. Owner will realize an additional cost savings over and above the original Bid cost.
 - c. Owner will receive a superior product to those specified and/or realize a significant maintenance and operating cost savings.
 - d. Overall construction time will be reduced (not just the time for the trade offering the substitution).
- B. A request for substitution constitutes a representation that the Contractor:
 - 1. Has investigated the proposed product and determined it is equal to or exceeds the quality level in all respects of the specified product and that it will perform adequately in the application intended.
 - 2. Will provide the same warranties or bonds for substitution as for product specified.
 - 3. Will coordinate installation as an accepted substitution into the Work, and make such other changes as may be required to make the work complete in all respects with no additional cost to the Owner or other contractors.
 - 4. Waives all claims for additional costs or time extension under his responsibility which may subsequently become apparent.
 - 5. Will pay all Architect's and Engineer's redesign cost, special inspections, and all other cost caused by substitutions.

- C. Submit a separate request for each product. Each request shall be on a separate "Substitution Request" form, included at the end of this Section. Provide complete data, drawings and samples as appropriate, with each request, including:
 - 1. Comparison of qualities of proposed substitution with that specified.
 - 2. Changes required in other elements of work because of substitution.
 - 3. Effect on construction schedule.
 - 4. Cost data comparing proposed substitution with product specified.
 - 5. Any required license fees or royalties.
- D. Architect will be judge of acceptability of proposed substitution except where cost is involved.
- E. Substitutions WILL NOT be considered when they are indicated or implied on shop drawings or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.
- F. Architect will review requests for substitutions with reasonable promptness and notify Contractor in writing of decision to accept or reject requested substitution.

1.05 SUBMITTAL REQUIREMENTS

- A. Submit 3 copies of each request for substitution for consideration. Submit requests on the "Substitution Request" form included at the end of this Section and in accordance with procedures required for Change Order proposals.
 - 1. Include related Specification Section and Drawing numbers. Provide complete documentation showing compliance with the requirements for substitutions, and the following information, as appropriate:
 - a. Certification by the Contractor and Supplier that the substitution proposed is equal-to or exceeds the specified product in every significant respect to that required by the Contract Documents, and will perform adequately in the application indicated.
- B. For products:
 - 1. Product identification, including manufacturer's name.
 - 2. Manufacturer's literature, marked to indicate specific model, type, size, and options to be considered:
 - a. Product description.
 - b. Performance and test data.
 - c. Reference standards.
 - d. Difference in power demand, air quantities, etc.
 - e. Dimensional differences from specified unit.
 - 3. Full size samples if requested.
 - 4. Architect reserves right to retain sample until physical units are installed on Project for comparison purposes.
 - 5. Requester pay all costs of furnishing and return of samples.
 - 6. Architect is not responsible for loss of, or damage to, samples.
 - 7. Name and address of at least 3 similar projects and name of Owner's Representative Architect can contact; to discuss product, installation, and field performance data.
- C. For construction methods:
 - 1. Detailed description of proposed method.
 - 2. Illustrate with drawings.
- D. Itemized comparison of proposed substitute to specified item; indicate variations including size, weight, durability, and visual effect.
- E. Data relating to changes in construction schedule.
- F. Effect and changes required on separate or other contracts.

- G. Coordination information necessary to accommodate the proposed substitute. Include a list of changes or modifications needed to other parts of the Work and to construction performed by separate contractors.
- H. Complete breakdown of costs, of proposed substitution which shall include additional costs and saving generated by proposed substitution and shall indicate amount, if any, to be deducted from Contract Sum if proposed substitution is accepted.
- I. Availability of maintenance and repair services, and sources of repair or replacement items.

PART 2 PRODUCTS

2.01 SUBSTITUTIONS

- A. Conditions: Contractor's substitution request will be received and considered by the Architect when the following conditions are satisfied, as determined by the Architect; otherwise requests will be returned without action except to record noncompliance with these requirements.
 - 1. Extensive revisions to Contract Documents are not required.
 - 2. Proposed changes are in keeping with the general intent of Contract Documents.
 - 3. The request is timely, fully documented and properly submitted.
 - 4. The specified products or method of construction cannot be provided within the Contract Time. Request will not be considered if product or method cannot be provided as a result of failure to pursue the Work promptly or coordinate activities properly.
 - 5. The specified product or method of construction cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
 - 6. A substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear, including but not limited to costs incurred by the Owner due to redesign and re-engineering that the Architect and Engineers must engage in to modify Contract Documents and any (re)submissions to the Authorities Having Jurisdiction (AHJ) to accommodate the Substitution..
 - 7. The specified product or method of construction cannot provide a warranty required by the Contract Documents and where the Contractor certified that the proposed substitution will provide the required warranty.
- B. Substitutions WILL NOT be considered if:
 - 1. Substitutions are not submitted in conformance with this Section.
 - 2. Acceptance will require substantial revision to the Contract Documents, or building spaces.
 - 3. Request for substitution does not indicate specific item for which request is submitted.
 - 4. Request Form is not properly executed
 - 5. Acceptance of manufacturer only will not be made.
 - 6. Requested directly by a Subcontractor or supplier.
 - 7. Insufficient information submitted.
- C. Architect's Action: Within one week of receipt of the request for substitution, the Architect will request additional information or documentation necessary for evaluation of the request. Within 2 weeks of receipt of the request, or one week of receipt of the additional information or documentation, which ever is later, the Architect will notify the Contractor of acceptance or rejection of the proposed substitution. Acceptance will be in the form of a Change Order.
 - 1. If a decision on use of proposed substitute cannot be made or obtained within the time allocated, use the product specified by name.
- D. The Contractor's submittal and Architect's acceptance of Shop Drawings, Product Data or Samples that relate to construction activities not complying with the Contract Documents does not constitute an acceptable or valid request for substitution, nor does it constitute approval.

PART 3 EXECUTION (NOT APPLICABLE)
END OF SECTION 01 2500

SECTION 01 2613 - REQUESTS FOR INTERPRETATION (RFI)

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for handling and processing Requests For Information.

1.03 DEFINITIONS

- A. Definitions used in this article are not intended to change or modify the meaning of other terms in the Contract Documents.
- B. Request for Interpretation (RFI): A request for information by the Contractor to the Architect of Record for clarification of intent of any portion of the Contract Documents after the Award of Contract and during the construction of the Project.
- C. The following are NOT Requests for Information.
 - 1. Change Orders.
 - 2. Construction Change Directives.
 - 3. Substitution Request.
 - 4. Bulletin.
 - 5. Field Order.
 - 6. Shop Drawings.
 - 7. Normal questions contained in a typical shop drawing submittal.
 - 8. Clarifications during Bidding.

1.04 REQUESTS FOR INTERPRETATION (RFI'S) DURING CONSTRUCTION

- A. RFI's are logged-in at the Architect's Office, not necessarily with same date as indicated by the Contractor on RFI form. The response time will commence upon the date of receipt by the Architect.
 - 1. E-mail copies of RFI's sent by the Contractor and received on or after a Friday after 2:00 PM are to be dated the following Monday, holidays excepted.
- B. Requests for Interpretation (RFI): If clarification of any portion of Construction Documents is required, submit a Request for Interpretation to the Architect of Record and the Owner's Representative in accordance with the following procedures:
 - 1. RFI Format:
 - a. Submit on a standard form developed by the Contractor.
 - b. RFI's shall be sequentially numbered; and include the following:
 - 1) Date
 - 2) Project name and number
 - 3) Contractor's name, address, telephone number and fax number.
 - 4) Description of subject and discipline (trade) in question.
 - 5) Adequate space for Architect of Record to respond, sign, and date.
 - c. Contractor shall submit a copy of the format to the Architect of Record and Owner's Representative at start of Project for review and comment.
- C. RFI Inquiry:
 - 1. Clearly state and completely define the issue requiring interpretation. Provide drawing and detail numbers, specification section numbers and paragraphs, sketches and other reference information.
 - 2. Provide potential solutions to issues when possible.

3. Provide cost and schedule implications, if any.
 4. Ambiguous RFI's will be returned to Contractor without action taken.
- D. RFI Submission Process:
1. The Contractor shall submit an RFI, in writing, to Architect of Record immediately with a copy to the Owner's Representative when any issue requiring clarification arises.
 - a. Unless specifically stated on RFI, the Architect of Record and the Owner will assume adjustments to the Contract Amount and the Project Schedule are NOT REQUIRED.
 2. The Architect of Record will review and respond only to RFI's received in writing from the Contractor.
 3. Submit two (2) copies of each RFI and Architect of Record response, including any supplemental drawings and additional instructions, to the Owner's Representative for record purposes.
 4. The Contractor shall allow seven (7) days for the Architect of Record to review and respond to the RFI.
 5. RFI's submitted to the Architect of Record without following these submission procedures will result in rejection of the submission.
- E. RFI Log:
1. Contractor shall maintain an RFI log indicating the RFI number, subject, date, response date and impact, if any on schedule and cost.
 2. Contractor shall publish the log at least bi-monthly to the Architect of Record and Owner's Representative.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION - NOT APPLICABLE

END OF SECTION 01 2613

SECTION 01 3113 - PROJECT COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project coordination.
- B. Employ and pay for services of a full-time project superintendent for duration of construction work.
 - 1. Provide additional administrative and supervisory personnel including services of a project manager and expeditor as required for performance of the work including coordination of subcontractors.

1.03 QUALITY ASSURANCE

- A. Project Coordinator Qualifications: Not less than five years experience performing project coordination work on projects of similar size and scope.
- B. Coordination: Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection and operation.
 - 1. Where installation of one part of the work is dependent on installation of other components, either before or after its own installation, schedule construction activities in sequence required to obtain best results.
 - 2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the work.
- D. Conservation: Coordinate construction activities to ensure operations are carried out with consideration given to conservation of energy, water and materials.

1.04 PROJECT COORDINATION

- A. Coordinate work of subcontractors including that related to:
 - 1. Temporary facilities and controls.
 - 2. Work specified in Divisions 02 through 49 of the specifications.
- B. Coordinate schedules of subcontractors and material suppliers as required to:
 - 1. Verify timely deliveries and materials and products for installation by other subcontractors.
 - 2. Verify labor and materials are adequate to maintain schedules.
- C. Conduct conferences with subcontractors and other concerned parties as necessary to:
 - 1. Maintain coordination and schedules.
 - 2. Resolve matters in dispute.
- D. Participate in project meetings to ensure coordination and to:
 - 1. Report on progress of work.
 - 2. Recommend needed changes in schedules.
- E. Coordinate temporary facilities and controls as required to:
 - 1. Verify installation, operation and maintenance complies with governing codes and regulations.

2. Verify adequacy of facilities and controls for construction activities and operations.
- F. Coordinate shop drawings, product data and submittals. Review for compliance with requirements of Contract Documents prior to submittal.
 1. Verify field dimensions and clearances.
 2. Verify relation to available space.
 3. Verify settings of anchorages including anchor bolts.
 4. Review effects of changes in work with subcontracts and other contracts.
 5. Verify compatibility of equipment with work of other subcontracts.
 6. Verify motor voltages and control characteristics.
 7. Coordinate controls and interlocks to verify voltages and phase, and wiring of pneumatic electric switches and relays.
- G. Prepare coordination drawings as required to assure coordination of work and to resolve conflicts prior to installation.
- H. Observe required testing, maintain records of tests and record:
 1. Testing agency and name of inspector.
 2. Subcontract work being tested.
 3. Representatives present.
 4. Date and time of testing.
 5. Type of products or work being tested.
 6. Types of tests and results.
 7. Any retesting required.
- I. Verify subcontractors are maintaining accurate project record documents.
- J. Review proposals and requests for substitutions, modifications and changes.
 1. Verify compliance with requirements.
 2. Verify compatibility with work and equipment of other subcontracts.
 3. Recommend action.
- K. Verify work complies with requirements of Contract Documents.
 1. Maintain record of observed deficiencies and discrepancies.
 2. Promptly report deficiencies and discrepancies to Architect.
- L. Assemble documentation associated with any claims or disputes.
- M. Attend equipment start-up:
 1. Verify services and connections are complete and equipment is in operable condition.
 2. Observe testing, adjusting and balancing.
 3. Record results including time and date of start-up.
- N. Coordinate inspection and acceptance of equipment.
 1. Prior to inspection, verify equipment is clean, tested and operational.
 2. Assist inspector and prepare list of items to be completed or corrected.
 3. Should acceptance and operation of equipment constitute the beginning of any specified guarantee period, prepare and transmit written notice.
- O. Coordinate inspection and acceptance of work.
 1. Prior to inspection verify work is complete and ready for acceptance
 2. Assist inspector and prepare list of items to be completed or corrected.
 3. Should acceptance of work constitute the beginning of any specified guarantee period, prepare and transmit written notice.
- P. Assemble project record documents.
- Q. Submit copies of lists, tests and operating logs to Architect.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 3113

SECTION 01 3119 - PROJECT MEETINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project meetings including pre-construction conference, coordination meetings and progress meetings.
- B. Contractor is specifically responsible for:
 - 1. Preparing agenda for each meeting which includes specified topics.
 - 2. Providing written notice of each meeting including agenda to all attendees not less than four days in advance of meeting date.
 - 3. Making physical arrangements for each meeting.
 - 4. Presiding at each meeting.
 - 5. Recording minutes of each meeting including but not limited to all significant proceedings, decisions, action required and persons assigned to action.
 - 6. Reproducing and distributing minutes of each meeting to all attendees and other parties affected by decisions made at meeting not later than three days after each meeting.

1.03 PRE-CONSTRUCTION CONFERENCE

- A. Schedule a pre-construction conference and organizational meeting for the Project at project site or other convenient location no later than 15 days after execution of Agreement and prior to commencement of construction activities. Conduct meeting to review goals, responsibilities and personnel assignments.
- B. Contractor shall submit the following prior to meeting and such additional items as Architect may direct:
 - 1. Signed Contract.
 - 2. Bonds as required.
 - 3. Proof of insurance.
 - 4. Required permits.
 - 5. Preliminary construction schedule.
 - 6. List of subcontractors.
 - 7. Schedule of values.
 - 8. Preliminary payment schedule.
 - 9. Project directory.
 - 10. Safety plan and name of Safety Officer.
- C. Attendees: Owner, Architect and its consultants, Contractor and its project manager, project coordinator and project superintendent, major subcontractors, manufacturers and suppliers. Other concerned parties shall each be represented at the conference by persons familiar with and authorized to conclude matters relating to the Work.
- D. Agenda: Discuss items of significance that could affect progress including such topics as:
 - 1. List of subcontractors, manufacturers and suppliers.
 - 2. Tentative construction schedule.
 - 3. Critical work sequencing.
 - 4. Designation of responsible personnel.
 - 5. Procedures for processing field decisions and Change Orders.
 - 6. Procedures for processing applications for payment.
 - 7. Distribution of Contract Documents.

8. Submittals of shop drawings, product data and samples.
9. Preparation of record documents.
10. Use of premises.
11. Office, work and storage areas.
12. Temporary facilities and controls.
13. Equipment deliveries and priorities.
14. Safety procedures.
15. First aid.
16. Security.
17. Housekeeping.
18. Working hours both within and outside of the Building.

1.04 COORDINATION MEETINGS

- A. Conduct project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings and special pre-installation meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for construction activities involved.
- C. Record meeting results and distribute copies within 24 hours to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.05 PROGRESS MEETINGS

- A. Conduct progress meetings at Project site at regularly scheduled intervals, but not less frequently than every other week. Notify Owner and Architect of scheduled meeting dates. Coordinate dates of meetings with preparation of payment requests. Prepare construction schedule update for each meeting to discuss.
- B. Attendees: In addition to representatives of Owner, Architect and Contractor, each subcontractor, supplier or other entity concerned with current progress or involved in planning, coordination or performance of future activities shall be represented at these meetings by persons familiar with the Project and authorized to conclude matters relating to progress.
- C. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to current status of the Project.
 1. Contractor's Construction Schedule: Review progress since the last meeting.
 - a. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule.
 - b. Determine how construction behind schedule will be expedited, at no additional cost to the Owner; secure commitments from parties involved to do so.
 - c. Discuss whether schedule revisions are required to ensure current and subsequent activities will be completed within the Contract Time.
 2. Review present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off-site production quotas and fabrication problems.
 - f. Access.
 - g. Site utilization.
 - h. Temporary facilities and services.
 - i. Hours of work.
 - j. Hazards and risks.

- k. Housekeeping.
 - l. Quality and work standards.
 - m. Change Orders.
 - n. Documentation of information for payment requests.
- D. Reporting: Record meeting results including agreements and disagreements, and distribute copies of minutes of each meeting to each party present and to other parties who should have been present. Include a brief summary, in narrative form, of progress since previous meeting and report.
 - 1. Schedule Updating: Revise construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with report of each meeting.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 3119

SECTION 01 3323 - SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Submittals of shop drawings, product data and samples as required by Contract Documents. Receive, check and coordinate all submittals of all contractors for compliance with Contract Documents prior to submission to Architect, as provided herein.
 - 1. Submittals of products, materials and methods not specified or pre-approved at time of Bidding will be REJECTED.
 - 2. Architect will dispose of submittals in excess of requested number of copies.
- B. Unless notified or indicated otherwise, the Architect shall review all shop drawings and other submittals. Allow two weeks for review.
- C. Architect WILL NOT REVIEW
 - 1. Submittals not specified.
 - 2. Submittals not reviewed by Contractor; including Contractor stamp with signature, date and comments.
 - 3. Submittals made after work is delivered to site and/or installed
 - 4. Submittal resubmissions unless resubmission is required by Architect.

1.02 DEFINITIONS

- A. Shop Drawings: Drawings, diagrams, schedules and other data specifically prepared for the Work by the Contractor or any subcontractor, manufacturer, supplier or distributor, to illustrate some portion of the work.
- B. Product Data: Illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.
- C. Samples: Physical examples which illustrate materials, equipment or workmanship and establish standards by which the work will be judged.

1.03 SUBMITTAL SCHEDULE

- A. After acceptance by the Contractor of the Contractor's Construction Schedule, prepare a complete Schedule of Submittals. Submit schedule no later than 30 days before Initial Application for Payment.
 - 1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values and the list of products as well as Contractor's Construction Schedule.
 - 2. Architect WILL NOT guarantee time period for review of submittals until Submittal Schedule is received from Contractor. Review period may vary up to 6 weeks prior to receipt of such schedule by Architect.
- B. Prepare the schedule in chronological order. Provide the following information:
 - 1. Scheduled date for the first submittal.
 - 2. Related Specification Section number.
 - 3. Submittal category.
 - 4. Name of the subcontractor.
 - 5. Description of the part of the Work covered.
 - 6. Scheduled date for resubmittal.
 - 7. Scheduled date for the Architect's final release or approval.
- C. Distribution: Following Architect's response to initial submittal, print and distribute copies to the Architect, Owner, subcontractors, and other parties required to comply with submittal dates indicated.
 - 1. Post copies in the Project meeting room and temporary field office.

2. When revisions are made, distribute to same parties and post in same locations. Delete parties from distribution when their assigned part of the Work has been completed and are no longer involved in construction activities.
- D. Schedule Updating: Revise the schedule after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with each meeting report.

1.04 SUBMITTAL REQUIREMENTS

- A. Coordinate preparation and processing of submittals with performance of the work, so work will not be delayed by submittals. Coordinate and sequence different categories of submittals for the same work, and for interfacing units of work, so one will not be delayed for coordination with another. No extension of time will be allowed because of failure to properly coordinate and sequence submittals.
 1. Transmit each submittal from Contractor to Architect using a transmittal form. Submittals received from sources other than the Contractor will be returned without action.
 2. .pdf documents must be unencrypted (unlocked) to allow for processing of shop drawings (stamping). Documents received that do not allow the stamping of the electronic file will not be reviewed and will be returned to sender. Time will not accrue against the allowable time for submittal review.
- B. Large Format Submittals: Submit 1 print and 1 electronic copy (.pdf format) of each shop drawing, including fabrication, erection, layout and setting drawings and such other drawings as required under various sections of the Specifications, until final acceptance is obtained. Prepare drawings legibly, drawing plans, elevations, sections and details in scales required and on drawing sheets not larger than 30" X 42" nor smaller than 24" X 30".
 1. Architect will review shop drawings returning electronic copy to Contractor.
- C. Small Format Submittals (8-1/2" x 11" or 11" x 17"): Submit electronic copies (.pdf format) of manufacturer's descriptive product data including catalog sheets for materials, equipment and fixtures, showing dimensions, performance characteristics and capacities, wiring diagrams and controls, schedules, and other pertinent information as required. Where printed materials describe more than one product or model, clearly identify which is to be furnished.
- D. Submit electronic copies of manufacturer's descriptive product data including catalog sheets for materials, equipment and fixtures, showing dimensions, performance characteristics and capacities, wiring diagrams and controls, schedules, and other pertinent information as required. Where materials describe more than one product or model, clearly identify which is to be furnished.
- E. Submit samples cured and finished as specified and identical to product proposed for use. Include generic description, source product name or manufacturer, and compliance with requirements. Submit samples for kind, color, pattern, and texture for comparison to actual units delivered and installed.
- F. Shop drawings, product data and samples shall be dated, including Contractor and subcontractor dates of submittal and approval, and marked to show the names of the Project, Architect, Contractor, origination Subcontractor, manufacturer or supplier, and separate detailer, if pertinent. Shop drawings shall completely identify specification section and locations at which materials or equipment are to be installed.
 1. Reproductions of Contract Drawings as Shop Drawings are strictly PROHIBITED.
- G. Shop drawings, product data and samples shall be accompanied by an electronic transmittal letter containing project name, Contractor's name, number of drawings, and samples, titles and other pertinent data. Transmittal shall bear signature of the Contractor as evidence he checked same and found them in conformance with the Contract Documents.

- H. The Contractor shall review, approve and submit, with reasonable promptness and in such sequence as to cause no delay in the work or in the work of the Owner or any separate Contractor, all shop drawings, product data and samples required by the Contract Documents.
- I. By approving and submitting shop drawings, product data and samples, the Contractor represents he has determined and verified all materials, field measurements, and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the work and the Contract Documents.
- J. The Contractor shall not be relieved of responsibility for deviation from the requirements of the Contract Documents by the Architect's acceptance of shop drawings, product data or samples, unless the Contractor has specifically informed the Architect and Owner in writing of such deviation at time of such deviation. The Contractor shall not be relieved from responsibility for errors or omissions in the shop drawings, product data or samples by the Architect's acceptance thereof.
- K. Direct specific attention, in writing or on re-submitted shop drawings, product data or samples, to revisions other than those requested by the Architect on previous submittals.
- L. No portion of the work requiring submission of a shop drawing, product data or sample shall be commenced until the submittal has been accepted by the Architect. Such portions of work shall be in accordance with approved submittals.
- M. The Architect will review shop drawings, product data and samples.
- N. Contractor is responsible for obtaining and distributing required prints of shop drawings, product data, and samples, to his subcontractors and material suppliers; after as well as before final approval. Make prints of reviewed shop drawings from transparencies which carry Architect's appropriate stamp.
- O. Obtain copies of all shop drawings, product data and samples submitted to date and accepted from other Contractors.
- P. Shop drawings both large and small format shall be electronically organized for submission in complete sets.
- Q. Submit all specified submissions for a division of work at one time in complete packages unless arrangements are made beforehand. Incomplete and multiple submittals will be rejected.

1.05 USE OF CONTRACT DRAWINGS

- A. The Architect may provide electronic CAD files of Drawings to the Contractor and Sub-Contractors, upon request, for use as backgrounds in preparation of Contractor's Shop Drawings for this Project ONLY, for the fee stated herein.
- B. The Architect will provide electronic base files of Floor Plans, Reflected Ceiling Plans, and Elevations ONLY. Wall sections and details WILL NOT be released. Contract document files WILL NOT be released.
- C. The Contractor shall read, endorse, and return the Architect's waiver form, "Authorization for Release of CAD Files" to the Architect, prior to release of any electronic CAD files by the Architect. A copy of the Waiver Form is included at the end of this Section.
- D. The release of electronic CAD files by the Architect is solely for the convenience of the Contractor. The Architect shall not be responsible for the completeness or accuracy of these electronic CAD files. These electronic CAD files are not necessarily updated to reflect subsequent Bid Packages, addenda, bulletins, or other project revisions.

1.06 ARCHITECT'S ACTION

- A. Except for submittals for the record, for information and similar purposes, where action and return on submittals is required or requested, Architect will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is Contractor's responsibility, and not considered part of Architect's review and indication of action taken.
 - 2. Acceptance does not authorize any change in the Contract Documents unless specifically stated in a separate letter or Change Order.
- B. Action Stamp: Architect will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked to indicate the action taken.
 - 1. Review Stamp Terminology: Correction or comments made on shop drawings during this review do not relieve contractor from compliance with requirements of the Drawings and Specifications. This review is conducted only for the confirmation of general conformance with the design concept of the Project and general compliance with the information given in the Contract Documents.
 - a. The Contractor is responsible for:
 - 1) Confirming and correlating all quantities and dimensions.
 - 2) Selecting fabrication processes and techniques of construction.
 - 3) Coordinating his work with that of all other trades.
 - 4) Performing his work in a safe and satisfactory manner.
 - 2. Design Build Review Stamp Terminology: Review of information on these documents is made to insure compliance with the architectural design concept of this project. Comments and/or corrections refer to aesthetic issues only with no intent to review or alter engineering design content. Design build contractor shall coordinate his work with that of all trades.
 - 3. Submittal Action:
 - Reviewed - where no comment made.
 - Reviewed with Comments - where comments indicated on submittal qualifying, modifying, or otherwise changing it; however, submittal can be used for ordering, fabrication and erection.
 - Revise and Resubmit - Submittal not in conformance; revise and resubmit.
 - Submit Record Copy - Provide record copy of submittal.
 - Rejected - Submittal not required or not in conformance. Revise and resubmit.
- C. Other Action: Where a submittal is primarily for information or record purposes, for special processing or other Contractor activity, the submittal will be returned, marked "Action Not Required".

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 3323

SECTION 01 4000 - QUALITY REQUIREMENTS

PART 3 EXECUTION

1.01 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.

1.02 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 01 4000

SECTION 01 4216 - DEFINITIONS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. This Section defines various terms used throughout the Contract Documents.

1.03 DEFINITIONS

- A. Addendum: An Addendum is a written and/or graphic instrument issued by the Owner's Representative prior to award of Contract which modifies or interprets the Bidding Documents by additions, deletions, clarifications, or corrections. The Bidding Documents for the original Work shall govern the work described therein, unless modified by the Addendum. All costs or credits due to the Addendum shall be incorporated into the Bidder's Proposal Form for Addenda issued prior to the Owner's receipt of Bids, and by letter on Bidder's letterhead modifying Bid Form amounts for Addenda issued after Owner's receipt of Bids. Letter shall be signed by, and as for the original Bid Form submission.
- B. Alternate Price: A variation to the Base Bid amount stated on the Proposal Form to cover a variation in the Contract Requirements. If the Alternate Price is accepted by the Owner, the variation becomes a part of the Contract, and the amount quoted is then added to, or deducted from, the Lump Sum Base Bid amount to determine the Contract Sum. Variations may include a change in either the amount of construction to be completed, or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.
- C. Awardee: A Bidder selected to enter into a Contract with the Owner for Work included under the Bidder's Proposal, until such time as he is awarded a Contract and becomes a Subcontractor to the Contractor.
- D. Base Bid: The Bid amount before any Alternate Price or Substitution is considered.
- E. Bid: As used in the Instructions to Bidders: A Proposal prepared and submitted as required herein.
- F. Bidding Documents: A term used for the Advertisement, Instruction to Bidders, Proposal Form, Contract, Bid Security, and the proposed Contract documents including any and all addenda.
- G. Bulletin: A written and/or graphic instrument issued by the Owner's Representative, after award of the Contract, used to solicit a proposal for a change in the Work which may affect cost and/or time. The Contract Documents for the original Work Shall Govern the work described unless modified by the Bulletin. A Bulletin is NOT AN ORDER to do the work, But a request to submit a quotation. Changes to the Contract Amount or time shall be adjusted by a Change Order.
- H. Clarification: A written and/or graphic instrument issued by the Owner's Representative after Award of Contract to describe certain clarifications of or deviations from, the Contract documents not affecting cost or time. A Clarification IS AN ORDER to do the Work.
- I. Complete: Where used, it shall mean "Complete with connections, supports, attachments, and incidental items necessary for a finished and properly operating assembly or operation".
- J. Connect: The term shall mean "to bring service(s) to point of installation and make final connections of the service(s) to the installed equipment, and provide miscellaneous auxiliary appurtenances necessary to make operable for its intended use."
- K. Construction Issue: A written and/or graphic instrument issued by the Owner's Representative to provide the Contractor a method for obtaining expedient additions, revisions, or clarifications of Drawings and Specifications during the Design and Construction process.

- L. Contract Documents: Drawings and Specifications setting forth in detail the requirements for construction of the Project.
- M. Days and/or Calendar Days: Days listed on the calendar, including Saturdays, Sundays, and legal holidays where the Project is located.
- N. Directed: Terms such as “directed”, “requested”, “authorized”, “selected”, “approval”, “satisfactory”, “accepted”, “required”, and “permitted” are used without reference to specific entity, they shall mean “as directed by the Architect or Contractor”, and similar phrases. However, no implied meaning shall be interpreted to extend the Owner’s, Architect’s, or Contractor’s responsibility into the Contractor’s area of construction supervision, administration, means, or methods.
- O. Drawing: Plans and detail drawings, both large and small scale, furnished by the Architect for the purpose of giving instructions and showing the Work to be done.
- P. Experienced: Unless otherwise defined in the technical specifications, means having successfully completed a minimum of 5 previous Projects similar in size and scope to this Project, being familiar with the special requirements indicated, and having complied with the requirements of authorities having jurisdiction.
- Q. Field Order: A directive to make changes in the Work that is issued to the Contractor. Contractual obligations are the same as those for a Construction Change Directive.
- R. Furnish: To supply (only) to another party for their use or installation, including cost of delivery to the jobsite.
- S. Hours of Work: Standard hours of work for the Project shall be proposed by the Subcontractor, subject to approval of the Contractor, and shall be for all standard working days. Hours of work other than these “standard hours of work” will be considered “premium time hours” and shall include, if any, cost penalty. Work to be performed on “premium time hours” requires written permission from the Owner’s representative and shall be requested a minimum 48 hours prior to such need.
- T. Indicated: Graphic representations, notes, or schedules on the Drawings, or other Paragraphs or Schedules in specifications, and similar requirements in the Contract Documents. Where terms such as “shown”, “noted”, “scheduled”, and “specified” are used, it is to help locate the reference. No limitation on location is intended except as specifically noted.
- U. Install: To unload, temporarily store, distribute, uncrate, unpack, assemble, erect, and anchor into the intended final positions. The installer shall provide all miscellaneous hardware and supplies required to anchor and support securely, connect, clean-up, and dispose of rubbish.
- V. Installer: The Contractor or entity engaged by the Contractor, as an employee, subcontractor, or contractor of lower tier for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
- W. Not-In-Contract / NIC: Work not included in this Contract.
- X. Owner’s Representative: The Contractor is to act in the Owner’s behalf with regard to the work used in reference hereto.
- Y. Packaged Equipment: Equipment or Product that is complete with all integral components, including, but not limited to, piping, conduit, wiring, main power disconnect, starter, control transformer, relays, and controls fully mounted and completely interconnected ready for installation at final location and to receive final connection of mechanical and electrical services. For shipping of “Packaged Equipment” too large for completed assembly, the assembly may be “broken down” into shippable subassemblies requiring only minimal reassembly, refastening, reconnection, etc. Any piping and/or electrical connections required between subassemblies

shall be provided with quick-connect fittings which do not require special tools to secure the connections.

Z. Per: "in accordance with the requirements of".

AA. Plan(s): The terms shall read to mean "Contract Drawings".

AB. Product: Materials, systems, and equipment.

AC. Project: The total construction of which the work performed under the Contract Documents may be the whole or a part.

AD. Project Manual: The volume(s) assembled for the Work which may include Introductory Information, Bidding Requirements, Contract Forms, Conditions of the Contract, the Specifications, and Reference Materials.

AE. Project Site / Site: The space available for the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work as part of the Project. The extent of the Project Site is shown on the drawings and may or may not be identical with the description of the land upon which the Project is to be built.

AF. Provide: To furnish, install, and connect, complete and ready for intended use.

AG. Regulations: Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work.

AH. Request for Information (RFI): A request for information by the Contractor to the Architect of Record for clarification of intent of any portion of the Contract Documents after the Award of Contract and during the construction of the Project.

AI. Review: Where used in conjunction with the Architect's action on the Contractor's submittals, applications, and requests, is limited to the duties and responsibilities of the Architect as stated in the General Conditions and Supplementary Conditions. Such review shall not release the Contractor from responsibility to fulfill Contract requirements unless otherwise provided in the Contract Documents.

AJ. Supplier: As used herein; A firm or organization furnishing or delivering products directly to the jobsite, and because of such direct delivery, could be construed under the lien laws of the State in which the work is being performed as having lien rights against funds due the Contractor. Suppliers of materials and equipment, delivering to Contractor or Subcontractor on an open account basis and not having lien rights on the Work, will not be considered suppliers within the meaning of the Contract Documents.

AK. Testing Agency: An independent entity engaged to perform specific inspections or tests, either at the project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

AL. Trades: The use of titles such as "Carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter". It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

AM. Trade Specialists: Certain Sections of the Specifications require that specific construction activities be performed by specialists who are recognized experts in the operations to be performed. The Specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option.

AN. Unit Price: An amount proposed by Bidders, stated on the Bid Form, as a price per unit of measurement for materials or services added to, or deducted from, the Contract Sum by appropriate modification, if the estimated quantities of Work required by the Contract Documents are increased or decreased.

- AO. Work: (Capitalized) The construction services required by the Contract Documents, whether completed or partially completed, and including all other labor, materials, equipment and other services provided or to be provided by the Contractor too fulfill the Contractor's obligations. The Work may constitute the whole or part of the Project.
- AP. work: (Lower Case) Activity to do or perform something, a specific task being a part or phase of some larger activity, or something that results from a particular manner or method, working, operating, or devising.
- AQ. Working Days: Standard working days for the Project shall be all calendar days except Saturdays, Sundays, and legal holidays where the Project is located and shall invoke no cost or time penalties. Working days other than "standard working days" will be considered "premium working days" and shall include, if any, cost penalty. Work to be performed on "premium working days" requires written permission from the Owner's Representative, and shall be requested a minimum 48 hours prior to such requirement.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 4216

SECTION 01 4523 - QUALITY CONTROL TESTING AND INSPECTION SERVICES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Testing and inspection not specified in individual Sections. Refer to individual specification sections for testing of materials not listed here.
- B. Requirements of Part 1 apply to all Sections where testing or inspection is required.

1.03 SUBMITTALS

- A. Inspection and testing agency shall submit a certified written report of each inspection, test, or similar service to the Contractor in duplicate.
 - 1. Submit additional copies of each written report directly to the governing authority when the authority so directs.
 - 2. Report Data: Written reports of each inspection, test, or similar service shall include but not be limited to:
 - a. Date of issue.
 - b. Project title and number.
 - c. Name, address and telephone number of testing agency.
 - d. Dates and locations of samples and tests or inspections.
 - e. Names of individuals making the inspection or test.
 - f. Designation of the Work and test method.
 - g. Identification of product and Specification Section.
 - h. Complete inspection or test data.
 - i. Test results and an interpretations of test results.
 - j. Ambient conditions at the time of sample-taking and testing.
 - k. Comments or professional opinion as to whether inspected or tested Work complies with Contract Document requirements.
 - l. Name and signature of laboratory inspector.
 - m. Recommendations on retesting.

1.04 QUALITY ASSURANCE / CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply fully with manufacturers' instructions, including each step in sequence. Perform all steps required by manufacturer to properly install the Work regardless of whether every step is called out in this specification.
- C. Should manufactures' instructions conflict with these Contract Documents, request clarification from Architect before proceeding.
- D. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce workmanship of specified quality. Subcontractors who utilize unskilled workers to perform skilled trades work will be required to bear the burden of proof and certify in writing that the quality of work in place, is equal or exceeds the specified minimum standard.

- F. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
- G. Whenever a Subcontractor intends to depart from normal work hours, he shall notify the Contractor minimum 24 hours in advance for approval.
 - 1. Failure to give such timely notice may be cause for the Contractor to require the removal or uncovering of the Work performed during such time without the knowledge of the Contractor.
 - 2. Special arrangements can be made for emergency work or shutdowns as required.

1.05 DIMENSIONAL RESPONSIBILITY

- A. Thoroughly examine existing conditions and be familiar with work to be performed as specified hereinafter and shown on the Drawings.
- B. Before performing work or ordering materials, verify relevant dimensions of existing and new work and be responsible for their occurrence. Report any differences found to the Contractor and Architect for consideration before proceeding with the Work.
 - 1. If Subcontractor inadvertently or knowingly, proceeds with his work on dimensionally inaccurate work of another, he will be liable for cost of all corrections to his work when error is detected.

1.06 REFERENCES

- A. Conform to reference standard by date of issue on date of Construction Documents.
- B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
- C. The contractual relationship of the parties to the Contract Agreement shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.07 INSPECTION AND TESTING LABORATORY SERVICES

- A. Owner will appoint, employ, and pay for services of an independent inspection and testing agency to perform inspection, sampling, testing, air monitoring, and certification of products and mill test reports.
 - 1. The Independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Architect.
- B. Contractor shall notify independent testing and inspection firm minimum 24 hours prior to expected time of operations requiring services. In general, coordinate activities which require testing at weekly progress meetings to allow all parties efficient manpower utilization.
 - 1. Independent testing and inspection firm shall make efforts to comply with the changing progress of Project given reasonable notice, however should Contractor fail to schedule or fail to cancel testing or laboratory services, all cost incurred shall be borne by the Contractor.
- C. Reports will be submitted by Testing and Inspection firm within 5 days to the Architect, in triplicate, indicating observations, results of tests and indicating compliance or non-compliance with Contract Documents. Reports of discrepancy between observed test values and specified criteria in the Contract Documents are to be made within 24 hours to the Contractor and Architect.
 - 1. Testing and Inspection Reports will include the following information as a minimum:
 - a. Date of inspection/sampling
 - b. Date of report issued
 - c. Date test and/or inspection was performed
 - d. Project name
 - e. Architect's project number

- f. Laboratory name, address, telephone and fax number
 - g. Name and original signature of inspector
 - h. Record of weather and temperature
 - i. Description of product
 - j. Applicable specification section
 - k. Type of inspection/test
 - l. Location in Project.
- 2. Testing and Inspection firm shall inspect earthwork, concrete, masonry, asphalt, and structural steel, fireproofing and interpret test results in every case to explain compliance or non-compliance with Contract Documents.
- D. Retest Responsibility: Where results of required test, inspection, or similar services are not satisfactory, retesting is the responsibility of the Subcontractor, regardless of whether original test was Subcontractors responsibility.
 - 1. Retesting of work revised or replaced by Subcontractor is Subcontractor's responsibility, where required tests were performed on original work.
- E. Responsibility for Associated Services: Contractor is required to cooperate with independent agencies performing required test, inspection, or similar services. Provide auxiliary services as reasonably requested, including access to work, taking of samples, delivery of samples to test laboratories, and security and protection for samples and test equipment at Project Site.
- F. Coordination: Contractor and each engaged independent agency performing tests, inspections, or similar services, for the Project are required to coordinate and sequence activities so as to accommodate required services with a minimum delay of Work and without the need for removal/replacement of work to accommodate inspections and tests.

1.08 SPECIAL INSPECTIONS AND TESTING

- A. Special Inspections as required by code and Authorities having Jurisdiction will be performed by and Independent Testing agency hired by the Owner or by Owner's Representative. General Contractor and Contractor will cooperate with coordinate testing and inspection performed by this Independent Testing agency. In addition to MBC 2006, Chapter 17, refer to Structural Drawings and individual specification Sections for code required testing and inspection.

PART 2 PRODUCTS - NOT APPLICABLE

PART 3 EXECUTION

END OF SECTION 01 4523

SECTION 01 6000 - COMMON PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements governing the Contractor's selection of products and their use in the Project.
- B. General product requirements.
- C. Transportation, handling, storage and protection.
- D. Procedures for Owner-supplied products.
- E. Maintenance materials, including extra materials, spare parts, tools, and software.

1.03 DEFINITIONS

- A. Definitions used in this Article are not intended to change or modify the meaning of other terms used in the Contract Documents.
- B. Base and Optional Manufacturers: Acceptable manufacturers are often listed in Part 2 of a specification section. A particular manufacturer and product are often listed as a "Design Standard" or "Basis of Design".
 - 1. The "Design Standard" or "Basis of Design" is the manufacturer of the specific product used as the basis for design.
 - 2. The other manufacturers listed are "Optional" manufacturers, and manufacture a product similar to the specific product used as the design basis. Listing of a manufacturer indicates acceptance of that manufacturer as a supplier of the product, without a substitution, but only if the "optional" manufacturer's product complies with the specified requirements, including the salient qualities provided by the "Design Standard" manufacturer's product. Salient qualities include, but are not necessarily limited to the following:
 - a. Purpose and function.
 - b. Material and finish.
 - c. Strength, durability and other applicable physical properties.
 - d. Compatibility and performance attributes for the indicated application.
 - e. Capacity and operating characteristics, where applicable.
 - f. Size and configuration to the extent required for fit with adjoining and adjacent conditions and within spatial limitations.
 - g. Appearance, including exposed dimensions, profile, texture, pattern and color, where visible to personnel in a finished space or from the exterior.
 - 3. The Contractor is responsible for costs to provide any dimensional, structural, utility and other related adjustments required to fit an "Optional" manufacturer's product into the Work.

1.04 SYSTEM PERFORMANCE REQUIREMENTS

- A. Generally provide products, materials and equipment that:
 - 1. Comply with specified standards and related requirements.
 - 2. Comply with requirements for size, make, type and quality specified, or as specifically directed in writing by Architect.
 - 3. Where manufactured and fabricated products:
 - a. Design, fabricate and assemble per best engineering and shop practices.

- b. Manufacture like parts of duplicate units to standard sizes and gages, and to be interchangeable.
- c. Provide two or more items of the same kind as identical and by the same manufacturer.
- d. Provide products that are suitable for service conditions.
- e. Provide equipment capacities, sizes and dimensions shown or specified unless variations are specifically authorized in writing.
- 4. Do not use products, materials or equipment for any purpose other than that for which they are designed unless otherwise indicated or specified.

1.05 QUALITY ASSURANCE

- A. Source Limitations: To the greatest extent possible, provide products of the same kind from a single source.
- B. Compatibility of Options: When Contractor is given option of selecting between two or more products for use on the Project, the product selected shall be compatible with products previously selected, even if previously selected products were also options.

1.06 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver, store and handle products per manufacturer's recommendations, using means and methods that will prevent damage, deterioration and loss, including theft.
 - 1. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged or sensitive to deterioration, theft or other losses.
 - 2. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storage, unpacking, protecting and installing.
 - 3. Store products at site in manner to facilitate inspection and measurement of quantity or counting of units.
 - 4. Store heavy materials away from Project structure in manner that will not endanger supporting construction.
- B. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at site.
 - 1. Deliver products in undamaged condition in manufacturer's original containers or packaging with identifying labels intact and legible.
 - 2. Immediately on delivery inspect shipments to assure compliance with requirements of Contract Documents and accepted submittals, quantities are correct, and products are properly protected and undamaged.
- C. Provide equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.
- D. Store products per manufacturer's instructions with seals and labels intact and legible.
 - 1. Store products subject to damage by elements in weather-tight enclosures.
 - 2. Maintain temperature and humidity within ranges required by manufacturer's instruction.
- E. Exterior Storage: Store fabricated products above ground on blocking or skids to prevent soiling or staining. Cover products subject to deterioration with impervious sheet covers and provide adequate ventilation to avoid condensation.
- F. Arrange storage in manner to provide easy access for inspection. Make periodic inspections of stored products to assure products are maintained under specified conditions and free from damage or deterioration.

PART 2 PRODUCTS

2.01 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with Contract Documents, are undamaged, and unless otherwise indicated, unused at time of installation.
 - 1. Provide products complete with all accessories, trim, finish, safety guards and other devices and details needed for a complete installation and for intended use and effect.
- B. Product Selection Procedures: Product selection is governed by Contract Documents and governing regulations, not by previous Project experience. Procedures governing product selection include the following:
 - 1. Proprietary Specification Requirements: Where only a single product or manufacturer is named, provide product indicated. No substitutions will be permitted.
 - 2. Semi-proprietary Specification Requirements: Where two or more products or manufacturers are named, provide one of the products indicated. No substitutions will be permitted.
 - a. Where one product and manufacturer is named as the "Design Standard" and other manufacturers are specified by name, other manufacturer's equivalent product may be acceptable, subject to compliance with Contract requirements, including specifications of the product designated as the "Design Standard", as determined by Architect.
 - b. Specific equivalent manufacturer's products shall be identified in the initial submittal period.
 - 3. Descriptive Specification Requirements: Where Specifications describe a product or assembly, listing exact characteristics required, with or without use of a brand or trade name, provide a product or assembly that provides the characteristics and otherwise complies with Contract requirements. Use products of listed manufacturers but verify compliance with specified characteristics.
 - 4. Performance Specification Requirements: Where Specifications require compliance with performance requirements, provide products with these requirements, and are recommended by manufacturer for application indicated. Verify proposed product complies with performance requirements.
 - a. Manufacturer's recommendations may be contained in published product literature or by manufacturer's certification of performance.
 - 5. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with an imposed code, standard or regulation, select a product that complies with standards, codes or regulations specified.
 - 6. Visual Matching: Where Specifications require matching an established Sample, the Architect's decision will be final on whether a proposed product matches satisfactorily.
 - 7. Visual Selection: Where specified product requirements include the phrase "...as selected from manufacturer's standard colors, patterns, textures..." or a similar phrase, select a product and manufacturer that complies with other specified requirements. The Architect will select the color, pattern and texture from the product line selected.

2.02 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 OWNER-SUPPLIED PRODUCTS

- A. 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.
- B. 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.

3.02 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. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.
- F. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

3.03 STORAGE AND PROTECTION

- A. Store and protect products in accordance with manufacturers' instructions.
- B. Store with seals and labels intact and legible.
- C. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.
- D. For exterior storage of fabricated products, place on sloped supports above ground.
- E. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.
- F. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.
- G. Comply with manufacturer's warranty conditions, if any.
- H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.
- I. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.
- J. Prevent contact with material that may cause corrosion, discoloration, or staining.
- K. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

- L. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

3.04 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in the applications indicated. Anchor each product securely in place, accurately located and aligned with other Work. Do not omit any preparatory step or installation procedure unless specifically modified or exempted by Contract Documents.
- B. Handle, install, connect, clean, condition and adjust products per manufacturer's instructions and in conformance with specified requirements.
 - 1. Should project conditions or specified requirements conflict with manufacturer's instructions, consult with Architect for further direction.
 - 2. Do not proceed with work without clear instructions.
- C. Protection after Installation: Provide substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations. Remove when no longer needed.

END OF SECTION 01 6000

SECTION 01 7329 - CUTTING AND PATCHING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for cutting and patching.

1.03 QUALITY ASSURANCE

- A. Requirements for Structural Work: Do not cut and patch structural elements in manner that would reduce their load-carrying capacity or load-deflection ratio.
- B. Operational and Safety Limitations: Do not cut and patch operating elements or safety related components in manner that would result in reducing their capacity to perform as intended, or result in increased maintenance or result in decreased operational life or safety.
- C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in manner that would, in the Architect's opinion, reduce the building's aesthetic qualities or result in visual evidence of cutting and patching.
 - 1. Remove and replace work cut and patched in a visually unsatisfactory manner.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use materials identical to existing materials. If identical materials are not available or cannot be used where exposed surfaces are involved, use materials that match existing adjacent surfaces to the fullest extent possible with regard to visual effect. Use materials whose installed performance will equal or surpass that of existing materials.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Before cutting existing surfaces, examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed. Take corrective action before proceeding if unsafe or unsatisfactory conditions are encountered.
 - 1. Meet at Project Site with parties involved in cutting and patching before proceeding, including mechanical and electrical subcontractors. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
 - 2. Start of cutting and patching work will be construed as Contractor's acceptance of conditions within a particular area.

3.02 PREPARATION

- A. Temporary Support: Provide temporary support of work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of the Project that might be exposed during cutting and patching operations.
 - 1. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.
 - 2. Avoid cutting existing pipe, conduit or ductwork serving the building but scheduled to be removed or relocated until provisions have been made to bypass them.

3.03 CUTTING AND PATCHING

- A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay.

1. Cut existing construction to provide for installation of other components or performance of other construction activities and the subsequent cutting and patching required to restore surfaces to their original condition.
- B. Cutting: Cut existing construction using methods least likely to damage adjoining construction being retained.
 1. In general where cutting is required use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots neatly to size required with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. To avoid marring existing finished surfaces cut or drill from the exposed or finished side into concealed surfaces.
 3. Cut through concrete and masonry using a cutting machine such as a carborundum saw or diamond core drill.
 - a. Pneumatic tools are not allowed.
 - b. Do not pound or make openings with hammers.
 4. By-pass utility services such as pipe or conduit before cutting where services are shown or required to be removed, relocated or abandoned.
 - a. Cut off pipe or conduit in walls or partitions to be removed.
 - b. Cap, valve or plug and seal the remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after by-passing and cutting.
 5. Provide means of dust control for all operations creating dust including but not limited to the cutting of concrete and the cutting of masonry.
- C. Patching: Patch with durable seams that are as invisible as possible. Comply with specified tolerances.
 1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation.
 2. Restore finishes of patched areas and extend finish restoration into retained adjoining construction in manner to eliminate evidence of patching and refinishing.
 3. Where removal of walls or partitions extends one finished area into another, patch and repair floor and wall surfaces to provide an even surface of uniform color and appearance. Remove existing floor and wall finish materials and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a smooth painted surface extend final paint coat over entire unbroken area containing the patch to the nearest control joint or change in plane whichever is greater.
 4. Fit work tight to pipes, sleeves, ducts, conduit, and other penetrations through the work.
 5. At penetrations of fire-rated walls, partitions, ceilings, or floor construction, completely seal voids with UL rated firestopping systems to restore integrity of fire-rated element. Provide escutcheon plates where exposed to view.
 6. Patch spray-applied fireproofing to restore integrity of fire-rated elements at locations where fireproofing has been removed during demolition and/or for attachment of new construction.

3.04 CLEANING

- A. Thoroughly clean areas and spaces where cutting and patching is performed or used as access. Completely remove paint, mortar, oils, putty and items of similar nature. Thoroughly clean piping, conduit and similar features before painting or other finishing is applied. Restore damaged pipe covering to its original condition.

END OF SECTION 01 7329

SECTION 01 7423 - FINAL CLEANING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for final cleaning at Substantial Completion.
 - 1. Additional special cleaning requirements for specific elements of Work are specified in individual Section in Divisions 02 through 49.

1.03 QUALITY ASSURANCE

- A. Environmental Requirements: Conduct cleaning and waste disposal operations in compliance with local laws and ordinances. Comply with federal and local environmental and anti-pollution regulations.
 - 1. Do not dispose of volatile wastes such as mineral spirits, oil or paint thinner in storm or sanitary drains.
 - 2. Burning or burying of debris, rubbish or other waste material on premises will not be permitted.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Use cleaning material and agents recommended by the manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents potentially hazardous to health or property, or might damage finish surfaces.

PART 3 EXECUTION

3.01 FINAL CLEANING

- A. Provide final cleaning operations when required. Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit of work to condition expected from a commercial building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations.
- B. Complete the following cleaning operations before requesting inspection for Certification of Substantial Completion for the entire Project or for a portion of the Project.
 - 1. Clean Project Site, including landscape development areas of rubbish, waste materials, litter and foreign substances. Sweep paved areas to broom clean condition; remove stains, chemical spills, and other foreign deposits. Rake grounds which are neither planted or paved, to a smooth, even textured surface. Remove stains, spills and other foreign deposits.
 - 2. Remove tools, construction equipment, machinery and surplus materials from the site.
 - 3. Clean interior hard-surfaced finishes to a dirt-free condition, free of dust, stains, films and similar foreign substances.
 - 4. Broom clean concrete floors in unoccupied spaces.
 - 5. Touch-up and otherwise repair and restore marred exposed finishes and surfaces. Replace finishes and surfaces which cannot be satisfactorily repaired or restored, or show visible evidence of repair or restoration. Do not paint over UL and similar labels including mechanical and electrical identification plates.
 - 6. Wipe surfaces of mechanical and electrical equipment, elevator equipment and similar equipment clean. Remove excess lubrication, paint and other foreign substances.
 - 7. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

8. Clean light fixtures, lamps, globes and reflectors to function with full efficiency. Replace burned out bulbs and defective and noisy starters in fluorescent fixtures.
9. Leave Project clean and ready for occupancy.
- C. Removal of Protection: Remove temporary protection and facilities installed during construction to protect previously completed installations during remainder of construction period.
- D. Compliances: Comply with safety standards and governing regulations for cleaning operations. Remove waste materials from site and dispose of in lawful manner.
 1. Where extra materials of value remain after completion of associated construction have become the Owner's property, dispose of these materials to Owner's best advantage as directed.

END OF SECTION 01 7423

SECTION 01 7700 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project closeout.

1.03 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following, listing exceptions in the request:
 - 1. In the Application for Payment that coincides with, or first follows the date Substantial Completion claimed, show 100 percent completion for the portion of Work claimed as substantially complete. Include supporting documentation for completion as required and a statement showing an accounting of change to the Contract Sum. Comply with requirements of the General Conditions.
 - a. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction and reasons the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specified warranties, maintenance agreements, final certifications and similar documents as required by the General Conditions.
 - 4. Obtain and submit releases enabling Owner unrestricted use of the Work and access to services and utilities; include occupancy permits, operating certificates and similar releases.
 - 5. Submit record documents including maintenance manuals, damage or settlement survey, property survey and similar final record information.
 - 6. Deliver tools, spare parts, extra stock and similar items to Owner.
 - 7. Make final changeover of permanent locks and transmit keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 8. Complete start-up testing of systems and instruction of Owner's operating and maintenance personnel. Discontinue or change over and remove temporary facilities from site, along with construction tools, mockups and similar elements.
 - 9. Complete final cleaning requirements including touch-up painting.
- B. Inspection Procedures: On receipt of a request for inspection, Architect will either proceed with inspection or advise Contractor of unfilled requirements. Architect will prepare the Certificate of Substantial Completion following inspection, or advise Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 1. Architect will repeat inspection when requested and assured the Work has been substantially completed.
 - 2. Results of the completed inspection will form the basis of requirements for final acceptance.

1.04 FINAL REVIEW

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following, listing exceptions in request:
 - 1. Submit final payment request with releases and supporting documentation not previously submitted and accepted. Comply with requirements of Paragraph 9.10 of the General Conditions. Include certificates of insurance for products and completed operations.
 - 2. Submit an updated final statement, accounting for final additional changes to Contract Sum.

3. Submit a certified copy of Architect's final inspection list of items to be completed or corrected, stating each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by Architect.
 4. Submit record drawings and similar final record documents.
 - a. Each drawing shall be labeled "Project Record", dated and signed by the Contractor.
 - b. Each project record document shall be labeled "Project Record Document".
 5. Submit consent of surety to final payment.
 6. Submit evidence of final continuing insurance coverage complying with insurance requirements.
- B. Re-inspection Procedure: Architect will re-inspect Work upon receipt of notice the Work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Architect.
1. Upon completion of reinspection, Architect will prepare Certificate of Final Acceptance, or advise Contractor of incomplete Work or of obligations not been fulfilled but required for final acceptance.
 2. If necessary, reinspection will be repeated for final acceptance.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 7700

SECTION 01 7839 - PROJECT RECORD DOCUMENTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Administrative and procedural requirements for project record documents.
 - 1. Additional project record document requirements are specified in individual Sections in Division 02 through 49.

1.03 DEFINITIONS

- A. Project Record Documents: Contract drawings, specifications, and shop drawings, indicating "As-Built" conditions and actual products selected for use.

1.04 RECORD DOCUMENT SUBMITTALS

- A. General: Do not use record documents for construction purposes, protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for Architect's reference during normal working hours.
- B. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark set to show the actual installation where installation varies substantially from Work originally shown. Mark whichever drawing is most capable of showing conditions fully and accurately; where Shop Drawings are used, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements difficult to measure and record at a later date.
 - 1. Mark record sets with red erasable pencil; use other colors to distinguish between variations in separate categories of Work.
 - 2. Mark new information important to Owner, but not shown on Contract Drawings or Shop Drawings, including the following:
 - a. Changes made by addenda, change orders, supplemental instructions, or other modifications.
 - b. Significant changes and selections made during the construction process.
 - c. Significant detail not shown in the original Contract Documents.
 - d. Physical measurements locating underground utilities and appurtenances, dimensionally referenced to permanent surface improvements.
 - e. Location of internal utilities and appurtenances concealed in building structure, referenced to visible and accessible features of the building.
 - 3. Note related Change Order numbers, Field Order numbers, and other contract modifications, where applicable.
 - 4. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set.
 - 5. Obtain and pay for a complete set of Mylar auto positive transparencies using the Architect's original reproductions.
 - a. Transfer all corrections, changes and revisions from the job record set to the transparencies and add the legend "Record Drawings Prepared By (name) Contractor" and the date of printing to each transparency.
 - b. Print three complete sets of blueprints. The transparencies and two sets become the property of the Owner, while the Architect will retain the other set.
- C. Record Specifications: Maintain one complete copy of the Project Manual, including addenda, and one copy of other written construction documents such as Change Orders and modifications issued in printed form during construction. Mark these documents to show

substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.

1. Legibly mark and record at each "Product" section of each Specification Section, the description of the actual products installed, including the following:
 - a. Manufacturer's name and product model and number.
 - b. Product substitutions or alternates utilized.
 - c. Changes made by Addenda or Bulletin.
 2. Upon completion of the Work, submit record Specifications to Architect for Owner's records.
- D. Record Product Data: Maintain one copy of each Product Data submittal. Mark these documents to show significant variations in actual Work performed in comparison with information submitted. Include variations in products delivered to the site, and from manufacturer's installation instructions and recommendations.
1. Legibly mark each Product Data submittal indicating actual product number and model installed in the Work.
 2. Note related Change Orders.
 3. Markup applicable record drawings and Specifications.
 4. Upon completion of markup, submit complete set of record Product Data to Architect for Owner's records.
- E. Miscellaneous Record Submittals: Refer to other Specification Sections for requirements of miscellaneous record keeping and submittals in connection with actual performance of the Work.
1. Immediately prior to the date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.
 2. Submit to Architect for Owner's records.
- F. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size.
1. At a minimum, Operation and Maintenance Manuals shall contain:
 - a. Manual index cross referencing specification numbers for each item.
 - b. Operating instructions.
 - c. Emergency instructions.
 - d. Spare parts list.
 - e. Copies of warranties.
 - f. Wiring diagrams.
 - g. Recommended maintenance procedures and "turn around" cycles.
 - h. Inspection and system-test procedures.
 - i. Copies of applicable Shop Drawings.
 - j. Copies of applicable Product data.
 - k. Fixture lamping schedule.
 - l. Maintenance drawings and diagrams.
 - m. Listing of required maintenance materials.
 - n. Precautions against improper maintenance.
 - o. All organized by Specification Section.
 - p. Names and addresses of nearest service outlets, distributors, or factory outlets for each piece of equipment.
 2. Commence preparation of manuals after Shop Drawings and Product Data submittals have been accepted.
 3. Finished manuals shall be heavy-duty loose-leaf type 3-ring binders with hardboard covers and titled tabs identifying each particular portion or item of Work.

- a. Provide binders with pocket folders for folded sheet information.
 - b. Provide each binder a detailed Table of Contents referring to index tabs.
 - c. Mark appropriate identification on front and spine of each binder.
4. For each titled item or work portion, manual must provide names, addresses, and phone numbers of the following parties:
 - a. Contractor/installer.
 - b. Manufacturer.
 - c. Nearest dealer/supplier.
 - d. Nearest agency capable of supplying parts and service.
5. Each manual label on front cover or spine shall indicate the following information.
 - a. Project name and address.
 - b. Owner's name.
 - c. Name and address of Architect.
 - d. Name and address of Contractor.
 - e. Name and address of Contractor.
 - f. Date of Submission.
6. Submit three copies of maintenance manuals to Architect for Owner's records.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION (NOT APPLICABLE)

END OF SECTION 01 7839

SECTION 024119 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Demolition and removal of selected portions of building or structure.
 - 2. Demolition and removal of selected site elements.
 - 3. Salvage of existing items to be reused or recycled.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.
- C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Predemolition Photographs or Video: Submit before Work begins.

1.5 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- D. Survey of Existing Conditions: Record existing conditions by use of measured drawings and preconstruction photographs.
 - 1. Comply with requirements specified in Section 013233 "Photographic Documentation."

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
 - 1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 - 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 - 5. Dispose of demolished items and materials promptly.
- B. Removed and Salvaged Items:
 - 1. Clean salvaged items.
 - 2. Pack or crate items after cleaning. Identify contents of containers.
 - 3. Store items in a secure area until delivery to Owner.
 - 4. Transport items to Owner's storage area.

5. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.02 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture (refer to Structural Drawings for additional information).
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement.

1.03 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Material certificates.
- C. Material test reports.
- D. Floor surface flatness and levelness measurements.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- B. Testing Agency Qualifications: An independent agency (Special Inspector), acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.
- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- D. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- E. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.
- F. Preinstallation Conference: Conduct conference at Project site.

PART 2 - PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.

2.02 STEEL REINFORCEMENT

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. Reinforcing Bars: ASTM A 615/A 615M, **Grade 60** (Grade 420), deformed.
- C. Epoxy-Coated Reinforcing Bars: ASTM A 615/A 615M, Grade 60 (Grade 420) deformed bars, ASTM A 775/A 775M, epoxy coated, with less than 2 percent damaged coating in each 12-inch (300-mm) bar length.
- D. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, plain, fabricated from as-drawn steel wire into flat sheets.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."

2.03 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
1. Portland Cement: ASTM C 150, Type I, gray. Supplement with the following:
 - a. Fly Ash: ASTM C 618, Class F or C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120.
- B. Normal-Weight Aggregates: ASTM C 33, graded.
1. Maximum Coarse-Aggregate Size: **3/4 inch** (25 mm) nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.04 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 - 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 - 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.

2.05 WATERSTOPS

- A. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, **3/4 by 1 inch (19 by 25 mm)**.

2.06 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately **9 oz./sq. yd. (305 g/sq. m)** when dry.
- B. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering].

2.07 RELATED MATERIALS

- A. Expansion-and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.08 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of portland cement, which would otherwise be used,

by not less than 40 percent. Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:

1. Fly Ash: 25percent.
2. Combined Fly Ash and Pozzolan: 25 percent.
3. Ground Granulated Blast-Furnace Slag: 50 percent.
4. Combined Fly Ash or Pozzolan and Ground Granulated Blast-Furnace Slag: 50 percent portland cement minimum, with fly ash or pozzolan not exceeding 25 percent.
5. Silica Fume: 10 percent.
6. Combined Fly Ash, Pozzolans, and Silica Fume: 35 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.
7. Combined Fly Ash or Pozzolans, Ground Granulated Blast-Furnace Slag, and Silica Fume: 50 percent with fly ash or pozzolans not exceeding 25 percent and silica fume not exceeding 10 percent.

C. Admixtures: Use admixtures according to manufacturer's written instructions.

1. Use water-reducing, high-range water-reducing, or plasticizing admixture in concrete, as required, for placement and workability.
2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

D. Topping Slab at Loading Dock: Proportion structural normal-weight concrete mixture as follows:

1. Minimum Compressive Strength: 4000 psi (20.7 MPa) at 28 days.
2. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
3. Air Content: 6 percent, plus or minimum 1.5 percent at point of delivery for 1-inch nominal maximum aggregate size.

2.09 FABRICATING REINFORCEMENT

A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.

1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Chamfer exterior corners and edges of permanently exposed concrete.

3.02 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.03 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.

3.04 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of **1/8 inch (3.2 mm)**. Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 - 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut **1/8-inch- (3.2-mm-)** wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.

- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
- E. Waterstops: Install in construction joints and at other joints indicated according to manufacturer's written instructions.

3.05 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
- B. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
- C. Cold-Weather Placement: Comply with ACI 306.1.
- D. Hot-Weather Placement: Comply with ACI 301.

3.06 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces exposed to public view, to receive a rubbed finish, to be covered with a coating or covering material applied directly to concrete.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.07 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
 - 1. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.

- C. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.

3.08 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h (1 kg/sq. m x h) before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.09 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect / Engineer. Remove and replace concrete that cannot be repaired and patched to Architect's approval.

3.10 FIELD QUALITY CONTROL

- B. Testing and Inspecting: Owner will engage a qualified testing and inspecting agency (Special Inspector) to perform field tests and inspections and prepare test reports (refer to Structural Drawings for additional information).

END OF SECTION 033000

SECTION 037300 – CONCRETE REHABILITATION

Part 1 - General

1.01 Summary

- A. This specification describes the pressure injection of cracks with an epoxy resin adhesive.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001/9002 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by the manufacturer, or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified product.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) years, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturers

- A. **Sikadur 35 Hi-Mod LV**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification.
- B. **Sikadur Injection Gel**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification

2.02 Materials

- A. Epoxy resin adhesive for pressure injection of cracks shall be **Sikadur 35 Hi-Mod LV**:
 - 1. Component "A" shall be a modified epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents, pigments, and accelerators.
 - 3. The ratio of component A: component B shall be 2:1 by volume
 - 4. The material shall not contain asbestos.
- B. Epoxy resin adhesive for sealing of cracks & porting devices shall be **Sikadur Injection Gel**:
 - 1. Component "A" shall be a modified epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents, pigments, and accelerators.
 - 3. The ratio of component A: component B shall be 1:1 by volume
 - 4. The material shall not contain asbestos.
- C. Porting devices as required for either manual or automated application. Porting devices for automated application shall be supplied from manufacturer of the pressure injection equipment.

2.03 Performance Criteria

- A. Properties of the mixed epoxy resin adhesive used for the pressure injection grouting:
 - 1. Pot Life: 25 minutes (60 gram mass) @ 73° F
 - 2. Tack-Free Time: 90°F (32°C) 1.5 to 2 hours
75°F (24°C) 3 to 3.5 hours
40°F (5°C) 14-16 hours
 - 3. Viscosity: Approx. 375 cps. (mixed)
 - 4. Color: Clear, pale yellow
- B. Properties of the cured epoxy resin adhesive used for pressure injection grout:
 - 1. Compressive Strength (ASTM D-695)
 - a. 3 day: 10,700 psi (73.8 MPa)
 - b. 7 day: 11,000 psi (75.8 MPa)
 - c. 28 day: 13,000 psi (89.6 MPa)
 - Compressive Modulus, psi : min.
 - a. 7 day: 320,000 psi (2,200 Mpa)
 - 2. Shear Strength (ASTM D-732)
 - a. 14 day: 5,100 psi (35 MPa)
 - 3. Flexural Strength (ASTM D-790)
 - 14 day: 14,000 psi (97.0 MPa)

- Tangent Modulus of Elasticity in Bending .min.
b. 14 day: 370,000 psi (2,600 Mpa)
4. Bond Strength (ASTM C-882)
14 days (moist cure)
a. Hardened Concrete to Hardened Concrete 2,900 psi (20 Mpa)
5. Water Absorption (ASTM D-570), 7day
a. 24 hour immersion 0.27%
6. Tensile Properties (ASTM D-638) min.
a. 7 day Tensile Strength 8,900 psi (61 Mpa)
Elongation at Break 5.4%
b. 14 day Modulus of Elasticity 410,000 psi (2800 Mpa)

A. Properties of the mixed epoxy resin adhesive used for sealing of cracks & porting devices::

1. Pot Life: min. 30 minutes (60 gram mass) @ 73° F
2. Tack-Free Time: 75°F (24°C) 2 to 3.5 hours
40°F (5°C) 14-16 hours
3. Consistency: Smooth, Non-sag paste
4. Color: Gray

B. Properties of the cured epoxy resin adhesive used for sealing of cracks & porting devices:

1. Compressive Strength (ASTM D-695) @ 73F
a. 1 day: 8,000 psi (55.1 MPa)
b. 3 day: 10,000 psi (68.9 MPa)
c. 28 day: 10,000 psi (68.9 MPa)
Compressive Modulus, psi : .min.
a. 7 day: 270,000 psi (Mpa)
2. Shear Strength (ASTM D-732)
a. 14 day: 3,700 psi (25.5 MPa)
3. Flexural Strength (ASTM D-790)
a. 14 days: 6,700 psi (46.2 MPa)
Tangent Modulus of Elasticity in Bending .min.
b. 14 days: 750,000 psi
4. Bond Strength ASTM C-882
14 days (moist cure) min.
a. Hardened Concrete to Hardened Concrete 2,600 psi (17.9 Mpa)
5. Water Absorption (ASTM D-570), 7 day
a. 24 hour immersion 0.11%
6. Tensile Properties (ASTM D-638) min.
a. 7 day Tensile Strength 4,300 psi (29.7 Mpa)
Elongation at Break 1.3%
b. 14 day Modulus of Elasticity 410,000 psi (2800 Mpa)

Note: Tests above were performed with material & curing conditions at 73F & 45-55% relative humidity.

Part 3 - Execution

3.01 Mixing and Application

- A. Mixing the epoxy resin adhesive for sealing the cracks & porting devices: Premix each component. Proportion one parts by volume of Component "A" to one part Component "B" into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill or dispense from a ready to use prepackaged coaxial cartridge. Mix only that quantity of material that can be used within its potlife (25-35 minutes 73F).
- B. Mixing of the epoxy resin adhesive used for the pressure injection grouting:

Manual: Premix each component. Proportion two parts by volume of Component "A" to one part Component "B" into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its potlife (20-30 minutes 73F).
- C. Placement procedure:
 - 1. The epoxy resin adhesive for sealing the cracks & porting device: Set the porting devices as required by the equipment manufacturer. Spacing of the porting devices shall be accomplished as required to achieve the travel of the epoxy resin for the pressure injection grouting between ports and fill the cracks to the maximum. On structures open on both sides, provide porting devices on opposite sides at staggered elevations. Apply the mixed epoxy resin adhesive for sealing over cracks and around each porting device to provide an adequate seal to prevent the escape of the epoxy resin adhesive for the injection grouting. Where required by the Engineer, apply the epoxy resin adhesive for sealing in such a manner that minimal defacing or discoloration of the substrate shall result.
 - 2. The epoxy resin adhesive for the pressure injection grouting:

Manual: Load the mixed epoxy resin adhesive for grouting into a disposable caulking cartridge or bulk-loading caulking gun. Inject the prepared cracks with a constant pressure in order to achieve maximum filling & penetration without the inclusion of air pockets or voids in the epoxy resin adhesive. Begin the pressure injection at the widest part of the crack being injected and continue until there is the appearance of epoxy resin adhesive at an adjacent port, thus indicating travel. When travel is indicated, the decision to discontinue or continue the pressure injection from that port should be made by the contractor based on his experience, with the approval of the Engineer. Continue procedure until pressure injectable cracks has been filled.

Automated: Dispense the epoxy resin adhesive for grouting under constant pressure in accordance with procedures recommended by the equipment manufacturer as required to achieve maximum filling and penetration of the prepared cracks without the inclusion of air pockets or voids in the epoxy resin adhesive. The pressure injection of single or multiple ports, by use of a manifold system, is possible. This decision should be made by the Contractor, with the approval of the Engineer. Continue the approved procedure until all pressure injectable cracks have been filled.
- D. If penetration of any cracks is impossible, consult the Engineer before discontinuing the injection procedure. If modification of the proposed procedure is required to fill the cracks, submit said modification in writing to the Engineer for acceptance prior to proceeding.
- E. Adhere to all limitations and cautions for the epoxy resin adhesive in the manufacturers current printed literature.

3.02 Cleaning

- A. After the epoxy resin adhesive for grouting has cured, the epoxy resin adhesive for sealing cracks and porting devices shall be removed as required by the Engineer. Clean the substrate in a manner to produce a finish appearance acceptable to the owner.
- B. The uncured epoxy resin adhesive can be cleaned from tools with approved solvent. The cured epoxy resin adhesive can only be removed mechanically.
- C. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 037300

SECTION 039300 – CONCRETE CRACK INJECTION

Part 1 - General

1.01 Summary

- A. This specification describes the pressure injection of cracks with an epoxy resin adhesive.

1.02 Quality Assurance

- A. Manufacturing qualifications: The manufacturer of the specified product shall be ISO 9001/9002 certified and have in existence a recognized ongoing quality assurance program independently audited on a regular basis.
- B. Contractor qualifications: Contractor shall be qualified in the field of concrete repair and protection with a successful track record of 5 years or more. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.
- C. Install materials in accordance with all safety and weather conditions required by the manufacturer, or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.

1.03 Delivery, Storage, and Handling

- A. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.
- B. Store all materials off the ground and protect from rain, freezing or excessive heat until ready for use.
- C. Condition the specified product as recommended by the manufacturer.

1.04 Job Conditions

- A. Environmental Conditions: Do not apply material if it is raining or snowing or if such conditions appear to be imminent. Minimum application temperature 40°F (5°C) and rising.
- B. Protection: Precautions should be taken to avoid damage to any surface near the work zone due to mixing and handling of the specified product.

1.05 Submittals

- A. Submit two copies of manufacturer's literature, to include: Product Data Sheets, and appropriate Material Safety Data Sheets (MSDS).

1.06 Warranty

- A. Provide a written warranty from the manufacturer against defects of materials for a period of one (1) years, beginning with date of substantial completion of the project.

Part 2 - Products

2.01 Manufacturers

- A. **Sikadur 35 Hi-Mod LV**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification.
- B. **Sikadur Injection Gel**, as manufactured by Sika Corporation, 1682 Marion Williamsport Road, Marion, Ohio 43302 is considered to conform to the requirements of this specification

2.02 Materials

- A. Epoxy resin adhesive for pressure injection of cracks shall be **Sikadur 35 Hi-Mod LV**:
 - 1. Component "A" shall be a modified epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents, pigments, and accelerators.
 - 3. The ratio of component A: componet B shall be 2:1 by volume
 - 4. The material shall not contain asbestos.
- B. Epoxy resin adhesive for sealing of cracks & porting devices shall be **Sikadur Injection Gel**:
 - 1. Component "A" shall be a modified epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents. It shall not contain butyl glycidyl ether.
 - 2. Component "B" shall be primarily a reaction product of a selected amine blend with an epoxy resin of the diglycidether bisphenol A Type containing suitable viscosity control agents, pigments, and accelerators.
 - 3. The ratio of component A: componet B shall be 1:1 by volume
 - 4. The material shall not contain asbestos.
- C. Porting devices as required for either manual or automated application. Porting devices for automated application shall be supplied from maufacturer of the pressure injection equipment.

2.03 Performance Criteria

- A. Properties of the mixed epoxy resin adhesive used for the pressure injection grouting:
 - 1. Pot Life: 25 minutes (60 gram mass) @ 73° F
 - 2. Tack-FreeTime: 90°F (32°C) 1.5 to 2 hours
75°F (24°C) 3 to 3.5 hours
40°F (5°C) 14-16 hours
 - 3. Viscosity: Approx. 375 cps. (mixed)
 - 4. Color: Clear, pale yellow
- B. Properties of the cured epoxy resin adhesive used for pressure injection grout:
 - 1. Compressive Strength (ASTM D-695)
 - a. 3 day: 10,700 psi (73.8 MPa)
 - b. 7 day: 11,000 psi (75.8 MPa)
 - c. 28 day: 13,000 psi (89.6 MPa)Compressive Modulus, psi : .min.
 - a. 7 day: 320,000 psi (2,200 Mpa)
 - 2. Shear Strength (ASTM D-732)
 - a. 14 day: 5,100 psi (35 MPa)
 - 3. Flexural Strength (ASTM D-790)
 - 14 day: 14,000 psi (97.0 MPa)

- Tangent Modulus of Elasticity in Bending .min.
b. 14 day: 370,000 psi (2,600 Mpa)
4. Bond Strength (ASTM C-882)
14 days (moist cure)
a. Hardened Concrete to Hardened Concrete 2,900 psi (20 Mpa)
5. Water Absorption (ASTM D-570), 7day
a. 24 hour immersion 0.27%
6. Tensile Properties (ASTM D-638) min.
a. 7 day Tensile Strength 8,900 psi (61 Mpa)
Elongation at Break 5.4%
b. 14 day Modulus of Elasticity 410,000 psi (2800 Mpa)

A. Properties of the mixed epoxy resin adhesive used for sealing of cracks & porting devices::

1. Pot Life: min. 30 minutes (60 gram mass) @ 73° F
2. Tack-Free Time: 75°F (24°C) 2 to 3.5 hours
40°F (5°C) 14-16 hours
3. Consistency: Smooth, Non-sag paste
4. Color: Gray

B. Properties of the cured epoxy resin adhesive used for sealing of cracks & porting devices:

1. Compressive Strength (ASTM D-695) @ 73F
a. 1 day: 8,000 psi (55.1 MPa)
b. 3 day: 10,000 psi (68.9 MPa)
c. 28 day: 10,000 psi (68.9 MPa)
Compressive Modulus, psi : .min.
a. 7 day: 270,000 psi (Mpa)
2. Shear Strength (ASTM D-732)
a. 14 day: 3,700 psi (25.5 MPa)
3. Flexural Strength (ASTM D-790)
a. 14 days: 6,700 psi (46.2 MPa)
Tangent Modulus of Elasticity in Bending .min.
b. 14 days: 750,000 psi
4. Bond Strength ASTM C-882
14 days (moist cure) min.
a. Hardened Concrete to Hardened Concrete 2,600 psi (17.9 Mpa)
5. Water Absorption (ASTM D-570), 7 day
a. 24 hour immersion 0.11%
6. Tensile Properties (ASTM D-638) min.
a. 7 day Tensile Strength 4,300 psi (29.7 Mpa)
Elongation at Break 1.3%
b. 14 day Modulus of Elasticity 410,000 psi (2800 Mpa)

Note: Tests above were performed with material & curing conditions at 73F & 45-55% relative humidity.

Part 3 - Execution

3.01 Mixing and Application

- A. Mixing the epoxy resin adhesive for sealing the cracks & porting devices: Premix each component. Proportion one parts by volume of Component "A" to one part Component "B" into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill or dispense from a ready to use prepackaged coaxial cartridge. Mix only that quantity of material that can be used within its potlife (25-35 minutes 73F).
- B. Mixing of the epoxy resin adhesive used for the pressure injection grouting:

Manual: Premix each component. Proportion two parts by volume of Component "A" to one part Component "B" into a clean, dry mixing pail. Mix thoroughly for 3 minutes with a jiffy paddle on a low-speed (400-600 rpm) drill. Mix only that quantity of material that can be used within its potlife (20-30 minutes 73F).
- C. Placement procedure:
 - 1. The epoxy resin adhesive for sealing the cracks & porting device: Set the porting devices as required by the equipment manufacturer. Spacing of the porting devices shall be accomplished as required to achieve the travel of the epoxy resin for the pressure injection grouting between ports and fill the cracks to the maximum. On structures open on both sides, provide porting devices on opposite sides at staggered elevations. Apply the mixed epoxy resin adhesive for sealing over cracks and around each porting device to provide an adequate seal to prevent the escape of the epoxy resin adhesive for the injection grouting. Where required by the Engineer, apply the epoxy resin adhesive for sealing in such a manner that minimal defacing or discoloration of the substrate shall result.
 - 2. The epoxy resin adhesive for the pressure injection grouting:

Manual: Load the mixed epoxy resin adhesive for grouting into a disposable caulking cartridge or bulk-loading caulking gun. Inject the prepared cracks with a constant pressure in order to achieve maximum filling & penetration without the inclusion of air pockets or voids in the epoxy resin adhesive. Begin the pressure injection at the widest part of the crack being injected and continue until there is the appearance of epoxy resin adhesive at an adjacent port, thus indicating travel. When travel is indicated, the decision to discontinue or continue the pressure injection from that port should be made by the contractor based on his experience, with the approval of the Engineer. Continue procedure until pressure injectable cracks have been filled.

Automated: Dispense the epoxy resin adhesive for grouting under constant pressure in accordance with procedures recommended by the equipment manufacturer as required to achieve maximum filling and penetration of the prepared cracks without the inclusion of air pockets or voids in the epoxy resin adhesive. The pressure injection of single or multiple ports, by use of a manifold system, is possible. This decision should be made by the Contractor, with the approval of the Engineer. Continue the approved procedure until all pressure injectable cracks have been filled.
- D. If penetration of any cracks is impossible, consult the Engineer before discontinuing the injection procedure. If modification of the proposed procedure is required to fill the cracks, submit said modification in writing to the Engineer for acceptance prior to proceeding.
- E. Adhere to all limitations and cautions for the epoxy resin adhesive in the manufacturers current printed literature.

3.02 Cleaning

- A. After the epoxy resin adhesive for grouting has cured, the epoxy resin adhesive for sealing cracks and porting devices shall be removed as required by the Engineer. Clean the substrate in a manner to produce a finish appearance acceptable to the owner.
- B. The uncured epoxy resin adhesive can be cleaned from tools with approved solvent. The cured epoxy resin adhesive can only be removed mechanically.
- C. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION 039300

SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

- A. Section includes structural steel

1.02 DEFINITIONS

- A. Structural Steel: Elements of structural-steel frame, as classified by AISC 303, "Code of Standard Practice for Steel Buildings and Bridges."

1.03 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: Show fabrication of structural-steel components.

1.04 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified Installer and fabricator.
- B. Welding certificates.
- C. Mill test reports for structural steel, including chemical and physical properties.
- D. Source quality-control reports.

1.05 QUALITY ASSURANCE

- A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category STD, or have an equivalent quality assurance program as certified by a qualified independent testing agency.
- B. Installer Qualifications: A qualified installer who participates in the AISC Quality Certification Program and is designated an AISC-Certified Erector, Category CSE, or have an equivalent quality assurance program as certified by a qualified independent testing agency.
- C. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- D. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC 303.
 - 2. AISC 360.

PART 2 - PRODUCTS

2.01 STRUCTURAL-STEEL MATERIALS

- A. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.
- B. W-Shapes: ASTM A 992/A 992M.
- C. Channels, Angles, Shapes: ASTM A 36/A 36M.
- D. Plate and Bar: ASTM A 36/A 36M.
- E. Cold-Formed Hollow Structural Sections: ASTM A 500, Grade B, structural tubing.
- F. Steel Pipe: ASTM A 53/A 53M, Type E or S, Grade B.
- G. Welding Electrodes: Comply with AWS requirements.

2.02 BOLTS, CONNECTORS, AND ANCHORS

- A. High-Strength Bolts, Nuts, and Washers: **ASTM A 325 (ASTM A 325M)**, Type 1, heavy-hex steel structural bolts; **ASTM A 563, Grade C, (ASTM A 563M, Class 8S)** heavy-hex carbon-steel nuts; and **ASTM F 436 (ASTM F 436M)**, Type 1, hardened carbon-steel washers; all with plain finish.
- B. Zinc-Coated High-Strength Bolts, Nuts, and Washers: **ASTM A 325 (ASTM A 325M)**, Type 1, heavy-hex steel structural bolts; **ASTM A 563, Grade DH (ASTM A 563M, Class 10S)** heavy-hex carbon-steel nuts; and **ASTM F 436 (ASTM F 436M)**, Type 1, hardened carbon-steel washers.
 - 1. Finish: Hot-dip zinc coating] [Mechanically deposited zinc coating] [Hot-dip or mechanically deposited zinc coating].
 - 2. Direct-Tension Indicators: **ASTM F 959, Type 325 (ASTM F 959M, Type 8.8)**, compressible-washer type with [mechanically deposited zinc coating] [mechanically deposited zinc coating, baked epoxy-coated] finish.
- C. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: ASTM F 1852, Type 1, [heavy-hex] [round] head assemblies consisting of steel structural bolts with splined ends, heavy-hex carbon-steel nuts, and hardened carbon-steel washers.
 - 1. Finish: [Plain] [Mechanically deposited zinc coating].
- D. Threaded Rods: ASTM A 36/A 36M.
 - 1. Finish: Plain, or hot-dip zinc coating ASTM A 153/A 153M, Class C, if exposed to weather.

2.03 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.04 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate according to AISC's "Code of Standard Practice for Steel Buildings and Bridges" and AISC 360.
- B. Shear Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Use automatic end welding of headed-stud shear connectors according to AWS D1.1/D1.1M and manufacturer's written instructions.

2.05 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 - 1. Joint Type: Snug tightened, unless noted otherwise.
- B. Weld Connections: Comply with AWS D1.1/D1.1M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.

2.06 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to structural steel according to ASTM A 123.
- B. Galvanize above the roof and outside the building envelope (exposed to weather).

2.07 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage an independent testing and inspecting agency (Special Inspector, refer to Structural drawings for additional information) to perform shop tests and inspections and prepare test reports.
 - 1. Provide testing agency with access to places where structural-steel work is being fabricated or produced to perform tests and inspections.
- B. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- C. Bolted Connections: Shop-bolted connections will be tested and inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."

- D. Welded Connections: In addition to visual inspection, shop-welded connections will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
1. Liquid Penetrant Inspection: ASTM E 165.
 2. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 3. Ultrasonic Inspection: ASTM E 164.
 4. Radiographic Inspection: ASTM E 94.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify, with steel Erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC 303 and AISC 360.
- B. Maintain erection tolerances of structural steel within AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.03 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts" for type of bolt and type of joint specified.
 1. Joint Type: Snug tightened, unless noted otherwise.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Comply with AISC 303 and AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.

3.04 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency (Special Inspector, refer to Structural drawings for additional information) to inspect field welds, and, high-strength bolted connections.

- B. Bolted Connections: Bolted connections will be[tested and] inspected according to RCSC's "Specification for Structural Joints Using ASTM A 325 or A 490 Bolts."
- C. Welded Connections: Field welds will be visually inspected according to AWS D1.1/D1.1M.
 - 1. In addition to visual inspection, field welds will be tested and inspected according to AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E 165.
 - b. Magnetic Particle Inspection: ASTM E 709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration will not be accepted.
 - c. Ultrasonic Inspection: ASTM E 164.
 - d. Radiographic Inspection: ASTM E 94.
- D. Correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

END OF SECTION 051200

SECTION 05 5213 - PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 REFERENCE STANDARDS

- A. ASTM A 36 - Standard Specification for Carbon Structural Steel;; 2008
- B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2012.
- C. ASTM A 153/A 153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2005.
- D. ASTM A500/A500M - Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2013.
- E. ASTM A 780 - Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings; 2009.
- F. ASTM B 633 - Standard Specification for Electrodeposited Coatings of Zinc on Iron and Steel; 2007
- G. ASTM B 696 - Standard Specifications for Coatings of Cadmium Mechanically Deposited; 2004
- H. ASTM C 1107 - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2007.
- I. ASTM E 488 - Standard Test Method for Strength of Anchors in Concrete and Masonry Elements; 2003
- J. SSPC-PA 1 - Shop, Field and Maintenance Painting of Steel; 2000 (Ed. 2004)
- K. SSPC-SP 2 - Hand Tool Cleaning; 1982 (Ed. 2004)

1.03 SUBMITTALS

- A. See Section 01 3323 - Shop Drawings, Product Data, and Samples, for submittal procedures.
- B. Shop Drawings: Submit shop drawings showing fabrication and installation of handrails and railings including plans, elevations, sections, details of components, and attachments to other units of work.
 - 1. Establish compliance with design loadings.
 - a. Provide structural computations with material properties and other information needed for structural analysis signed and sealed by the professional engineer responsible for their preparation who is legally authorized to practice in the State in which the Project is located.

1.04 QUALITY ASSURANCE

- A. Structural Designer Qualifications: Professional Structural Engineer experienced in design of this work and licensed in the State in which the Project is located, or personnel under direct supervision of such an engineer.
- B. Fabricator Qualifications: Firm experienced in successfully producing handrails and railings similar to this project, with sufficient production capacity to produce required units without causing delay in work.
- C. Installer Qualifications: Arrange for installation of handrails and railings specified in this Section by same firm that fabricated them.
- D. Welding: Qualify personnel according to the following:

1. Certify each welder has satisfactorily passed AWS qualification tests for welding processes involved and, if pertinent, has undergone recertification.

1.05 DELIVERY, STORAGE, AND PROTECTION

- A. Store handrails and railing systems in clean, well-ventilated area, away from uncured concrete and masonry and protected from weather, moisture, soiling, abrasion, extreme temperatures and humidity.

1.06 PROJECT CONDITIONS

- A. Where handrails and railing systems are indicated to fit to other construction, check actual dimensions of other construction by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delay of work.
 1. Where field measurements cannot be made without delaying the work, guarantee dimensions and proceed with fabrication of products without field measurements. Coordinate construction to ensure actual opening dimensions correspond to guaranteed dimensions. Allow for trimming and fitting.

1.07 COORDINATION

- A. Galvanizer must provide information to Contractor as to how the galvanized materials have been processed and which, if any surface treatment methods were used. Contractor must communicate this information to the painting contractor to facilitate the proper preparation of the substrate prior to the application of the paint.

1.08 SEQUENCING AND SCHEDULING

- A. Sequence and coordinate installation of wall handrails as follows:
 1. Mount handrails only on completed walls. Do not support handrails temporarily by any means not satisfying structural performance requirements.

PART 2 PRODUCTS

2.01 RAILINGS - GENERAL REQUIREMENTS

- A. Structural Performance: Engineer, fabricate and install handrails and railing systems to withstand the following structural loads without exceeding the allowable design working stress of the materials for handrails, railing systems, anchors and connections. Apply each load to produce the maximum stress in each of the respective components comprising handrails and railing systems.
 1. Top Rail of Guards: Capable of withstanding the following loads applied as indicated:
 - a. Concentrated load of 200 lbs. applied at any point and in any direction.
 - b. Uniform load of 50 lbf/ft. applied horizontally and concurrently with uniform load of 100 lbf/ft. applied vertically downward.
 - c. Concentrated and uniform loads above need not be assumed to act concurrently.
 2. Handrails Not Serving as Top Rails: Capable of withstanding the following loads applied as indicated:
 - a. Concentrated load of 250 lbs. applied at any point and in any direction.
 - b. Uniform load of 50 lbf/ft. applied in any direction.
 - c. Concentrated and uniform loads above need not be assumed to act concurrently.
 3. Infill Area of Guards: Capable of withstanding a horizontal concentrated load of 200 lbf applied to 1 sq. ft. at any point in system, including panels, intermediate rails, balusters, or other elements composing infill area.
 - a. Load above need not be assumed to act concurrently with loads on top rails in determining stress on guards.

- B. Thermal Movements: Allow for thermal movement resulting from change (range) in ambient temperature in the design, fabrication and installation of handrails and railing systems to prevent

buckling, opening up of joints, overstressing of components and connections, and other detrimental effects.

- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
- D. Dimensions: See drawings for configurations and heights.
- E. Provide anchors and other components as required to attach to structure, made of same materials as railing components unless otherwise indicated; where exposed fasteners are unavoidable provide flush countersunk fasteners.
- F. Provide welding fittings to join lengths, seal open ends, and conceal exposed mounting bolts and nuts, including but not limited to elbows, T-shapes, splice connectors, flanges, escutcheons, and wall brackets.

2.02 STEEL MATERIALS

- A. General: Provide metal free from surface blemishes where exposed to view in the finished unit. Exposed-to-view surfaces exhibiting pitting, seam marks, roller marks, stains, discolorations or other imperfections on finished units are not acceptable.
- B. Steel Tube: ASTM A500/A500M, Grade B cold-formed structural tubing.
- C. Steel Pipe: ASTM A 53/A 53M, Schedule 40, black finish.
 - 1. Provide Type S, Grade A, unless otherwise indicated, or another grade required by structural loads.
- D. Steel Pipe: ASTM A 53/A 53M, Grade A Schedule 40, black finish, unless otherwise indicated or another weight required by structural loads.
- E. Steel Plates, Shapes and Bars: ASTM A 36/A 36M.
- F. Welding Fittings: Factory- or shop-welded from matching pipe or tube; seams continuously welded; joints and seams ground smooth.
- G. Welding Rods and Bare Electrodes: Select according to AWS specifications for the metal alloy to be welded.
- H. Brackets, Flanges and Anchors: Cast or formed metal of the same material and finish as supported rails, unless otherwise indicated.

2.03 WELDING MATERIALS, FASTENERS AND ANCHORS

- A. Welding Electrodes and Filler Metal: Provide type and alloy of filler metal and electrodes as recommended by producer of metal to be welded and as required for color match, strength and compatibility in fabricated items.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade and class required to produce connections suitable for anchoring railing to other types of construction indicated and capable of withstanding design loadings.
 - 1. For steel railings and fittings use plated fasteners per ASTM B 633, Class Fe/Zn 25 for electrodeposited zinc coating or ASTM B 696, Class 12 for cadmium plating.
- C. Fasteners for Interconnecting Railing Components: Use fasteners of 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 interconnection of handrail and railing components and for their attachment to other work, except where otherwise indicated.
 - 2. Provide allen-head set screws for exposed fasteners, unless otherwise indicated.

- D. Cast-in-place and Postinstalled Anchors: Cast-in-place, chemical or expansion type as indicated, or if not indicated, as standard for application shown if acceptable to Architect.
 - 1. Fabricate from corrosion-resistant materials capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and equal to 4 times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent testing laboratory.

2.04 GROUT AND ANCHORING CEMENT

- A. Nonshrink Nonmetallic Grout: ASTM C 1107, premixed, factory-packaged, nonstaining, noncorrosive, nongaseous grout. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.05 FABRICATION

- A. Accurately form components to suit specific project conditions and for proper connection to building structure.
- B. Fabricate handrails and railing systems to comply with requirements indicated for design, dimensions, details, finish and member sizes including wall thickness of hollow members, post spacings and anchorage, but not less than those required to support structural loads.
 - 1. Provide railing systems with balusters of type and spacing indicated.
- C. Fit and shop assemble components in largest practical sizes for delivery to site.
 - 1. Disassemble units only as necessary for shipping and handling limitations.
 - 2. Clearly mark units for reassembly and coordinated installation.
 - 3. Use connections that maintain structural value of joined pieces.
- D. Weld railing assembly joints and seams 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 welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- E. Fabricate components with joints tightly fitted and secured.
- F. Form changes in direction of railing members by radius bends of radius indicated.
- G. Form simple and compound curves by bending member 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.
- H. Provide wall returns at ends of wall mounted handrails, unless otherwise indicated. Close ends of returns unless clearance between end of the railing and wall is 1/4 inch or less.

2.06 SHOP FINISHING

- A. Clean surfaces of rust, scale, grease, and foreign matter prior to finishing.
- B. Finish metal stair assemblies after fabrication.
 - 1. Comply with NAAMM "Metal Finishes Manual" for recommendations on application and designation of finishes.
- C. Galvanizing: Hot-dip galvanize items indicated to comply with applicable standard listed below:
 - 1. ASTM A 123, for galvanizing steel and iron products.
 - 2. ASTM A 153, for galvanizing steel and iron hardware.

3. Fill vent and drain holes exposed in finished work by plugging with zinc colder and filling smooth.
4. Touch up abraded areas after fabrication using specified touch-up primer for galvanized surfaces.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine area and conditions under which handrails and railings are to be installed. Notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in an acceptable manner.
- B. Verify that field conditions are acceptable and are ready to receive work.

3.02 PREPARATION

- A. Coordinate setting drawings, diagrams, templates, instructions and directions for installation of anchorages such as sleeves, concrete inserts, anchor bolts and miscellaneous items having integral anchors to be embedded in concrete or masonry construction. Coordinate delivery of such items to project site.
- B. Clean and strip primed steel items to bare metal where site welding is required.
- C. Supply items required to be cast into concrete or embedded in masonry with setting templates, for installation as work of other sections.
- D. Apply one coat of bituminous paint to concealed aluminum surfaces that will be in contact with cementitious or dissimilar materials.

3.03 INSTALLATION

- A. Install components plumb and level, accurately fitted, free from distortion or defects, with tight joints.
- B. Fit exposed connections accurately together to form tight, hairline joints.
- C. Perform cutting, drilling and fitting required for installation of 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 handrails and railing components that have been coated or finished after fabrication and are intended for field connection by mechanical or other means without further cutting or fitting.
 2. Set posts plumb within a tolerance of 1/4 inch in 12 feet.
 3. Align rails so variations from level for horizontal members and from parallel with rake of steps and ramps from sloping members do not exceed 1/4 inch in 12 feet.
- D. Field Welding: Comply with the following requirements:
 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 welding flux immediately.
 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches those adjacent.
- E. Adjust handrails and railings prior to anchoring to ensure matching alignment at abutting joints. Space posts at interval indicated but not less than required by design loadings.
- F. Fastening to In-Place Construction: Provide anchorage devices and fasteners where necessary for securing handrails and railings to in-place construction.
- G. Welded Connections: Use fully welded joints for permanently connecting steel railing components by welding. Cope or butt components to provide 100 percent contact.

- H. Anchor posts in concrete by means of pipe sleeves preset and anchored into concrete. After posts have been inserted into sleeve, fill annular space between post and sleeve solid with non-shrink, nonmetallic grout, mixed and placed to comply with anchoring material manufacturer's directions.
 - 1. Leave anchorage joint exposed, wipe off surplus anchoring material, and leave 1/8-inch build-up, sloped away from post.
- I. Anchor steel posts to steel by welding, unless otherwise shown.
- J. Anchor rail ends into concrete and masonry as shown.
- K. Attach handrails to wall with wall brackets and end fittings, unless otherwise shown. Provide bracket with not less than 1-1/2 inch clearance from inside face of handrail and finished wall surface.
- L. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- M. Secure wall brackets and wall return fittings to building construction as follows:
 - 1. For concrete and solid anchorage, use drilled-in expansion shield and either concealed hanger bolt or exposed lag bolt, as applicable.
 - 2. For hollow masonry anchorage, use toggle bolts.
 - 3. For steel-framed gypsum board assemblies, fasten brackets directly to steel framing or concealed anchors using self-tapping screws of size and type required to support structural loads.
- N. Field weld anchors as indicated on shop drawings. Touch-up welds with primer. Grind welds smooth.

3.04 TOLERANCES

- A. Maximum Variation From Plumb: 1/4 inch per floor level, non-cumulative.
- B. Maximum Offset From True Alignment: 1/4 inch.
- C. Maximum Out-of-Position: 1/4 inch.

3.05 PROTECTION

- A. Touch-up Painting: Immediately after erection, clean field welds, bolted connection and abraded areas of shop paint, and paint exposed areas with same material as used for shop painting to comply with SSPC-PA 1 requirements for touch-up of field painted surfaces.
 - 1. Apply by brush or spray to provide 2.0 mils minimum dry film thickness.
 - 2. For galvanized surfaces, clean welds, bolted connections and abraded areas and apply galvanizing repair paint per ASTM A 780.

END OF SECTION 05 5213

SECTION 07 1400 - REINFORCED, HOT-APPLIED MEMBRANE WATERPROOFING

PART 1 GENERAL

1.01 SECTION INCLUDES:

- A. Furnish all labor, materials, equipment and supervision to provide the following in accordance with the Contract Documents:
 - 1. Installation of hot-applied membrane waterproofing on surfaces indicated on drawings, consisting of preparation of existing and repaired concrete surfaces, sealing of cracks and joints, and application of hot-applied membrane waterproofing.
 - 2. Drainage Composite.
 - 3. Fume Recovery System and related components/accessories.

1.02 REFERENCES

- A. American Society for Testing & Materials (ASTM)
- B. UL (Underwriters Laboratories, Inc.) - Fire Resistance Directory, latest edition.
- C. International Building Code, latest edition
- D. CGSB-37.50-M89 Canadian Specification for Hot-Applied, Rubberized Asphalt for Roofing and Waterproofing.

1.03 PERFORMANCE REQUIREMENTS

- A. Fire Hazard Classification: UL Class A.

1.04 SUBMITTALS

- A. Product Data:
 - 1. Submit manufacturer's latest descriptive literature for manufactured items (e.g. membrane and bitumen materials, base flashing materials, protective covering).
- B. Materials List:
 - 1. List of materials proposed to be furnished and installed under this portion of the Work.
 - a. This shall in no way be construed as permitting substitution of materials for those specified.
- C. Shop Drawings
 - 1. Shop drawings shall indicate installation layout, installation details, joint locations, special configurations and expansion provisions as required for this project.
 - 2. Shop drawings shall not consist of a reproduction of the Consultant's details, but rather shall provide supplemental information pertaining to specific dimensions, sequencing requirements, joints and laps, as well as provisions for expansion and contraction as may be required for completion of the Work.
 - 3. Upon request, provide supplemental information pertaining to specific dimensions, sequencing requirements, conditions of interface with other materials, joints and termination detail conditions as well as provisions for expansion and contraction as may be required for completion of the Work.
 - 4. EFVM Leak Detection: Diagram of proposed system showing complete monitored area, rooftop structures and equipment, and roof penetrations for building utilities and services. Show location of membrane leak detection system conductor cable, and contact boxes.
- D. Manufacturer's Information:
 - 1. Installation Instructions: Submit special procedures for perimeter conditions requiring special attention.
 - 2. Manufacturer's Certificate: Certify submitted products meet or exceed specified requirements.
 - 3. Copy of system manufacturer's inspection report of completed system installation.

1.05 QUALITY ASSURANCE

- A. Qualifications

1. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum ten years documented experience.
 2. Applicator: Company specializing in performing Work of this Section with minimum five years documented in-service experience approved by manufacturer.
- B. Manufacturer Inspections:
1. The waterproofing membrane system manufacturer shall perform start-up inspection of the Work.
 2. The waterproofing membrane system manufacturer shall perform periodic inspections throughout the course of the installation.
 3. There shall be no deviation made from the specification or the approved shop drawings without prior written approval by the owner or the owner's representative, and/or the design professional, and the waterproofing manufacturer.
 4. Upon completion of the installation and the delivery to waterproofing membrane manufacturer by the Applicator of a certification that all work has been done in strict accordance with the contract specifications and waterproofing membrane manufacturer's requirements, an inspection shall be made by waterproofing membrane manufacturer's technical representative to review the installed waterproofing system.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials to job site in original, unopened containers. Package labels shall include material name, production date and/or product code.
- B. An Owner designated area will be provided for storage of materials and related equipment.
- C. Store materials in accordance with applicable manufacturer's recommendations and material safety data sheets.
- D. Store approved materials in a suitable and designated area at the job site. Support materials off the ground and cover.
- E. Store bulk bitumens in heated tanker not greater than 350o F. Prevent modification of asphalt physical properties resulting from long periods of overheating.
- F. Use necessary means to ensure safe storage and use of material, as well as prompt and safe disposal of waste.
- G. Felts and other roll goods shall not be scraped, torn, bent, or otherwise damaged during unloading, storage, or installation. Any rolls which have been bent or weathered shall not be acceptable for application.

1.07 PROJECT / SITE CONDITIONS

- A. Advise Owner when volatile materials are to be used near air ventilation intakes so that they can be shut down or blocked as Owner requires.
- B. Locate hot tanks a minimum of 25 feet away from any building
- C. Environmental Requirements:
 1. Do not work in rain, snow or in presence of water.
 2. Do not install materials marked "Keep from Freezing" when daily temperatures are scheduled to fall below 40o F.
 3. Remove any work exposed to freezing.
 4. Do not apply membrane to damp or frozen deck surface.
 5. Do not expose materials vulnerable to water or sun damage in quantities greater than can be waterproofed same day.
- D. Coordinate waterproofing work with other trades. The applicator shall have sole right of access to the specified areas for the time needed to complete the application.
- E. Protect adjoining surfaces not to be waterproofed against damage or soiling. Protect plants, vegetation and animals which might be affected by waterproofing operations.
- F. Warn personnel against breathing of vapors and contact of material with skin or eyes. Wear applicable protective clothing and respiratory protection gear.

- G. Keep flammable products away from spark or flame. Do not allow the use of spark producing equipment during application until all vapors have dissipated. Post "NO SMOKING" signs.
- H. Maintain work area in a neat and orderly condition, removing empty containers, rags, and rubbish daily from the site.
- I. Maintain substrate clean, dry and frost-free for duration of application. Provide temporary heat and weather protection as required to keep installation temperatures in the range recommended by manufacturer.

1.08 SCHEDULING

- A. The loading dock and building must be maintained watertight at the end of each day.
- B. Completion of work shall be defined as the installation of all specified loading dock preparation, insulation and field membrane.
- C. Surfacing, flashings, sheet metal, fasteners, and caulking work shall be coordinated and installed by the Contractor during the course of the Work.

1.09 WARRANTY

- A. Contractor shall correct defective Work within a five year period after Date of Substantial Completion; remove and replace materials concealing waterproofing at no extra cost to Owner.
- B. Provide written warranty executed by Manufacturer and Installer agreeing to repair or replace sheet membrane waterproofing that fails in materials and workmanship within a specified warranty period.
 - 1. Failed materials and workmanship include leakage of water, abnormal aging or deterioration of materials, or other failures of membranes to perform as required within warranty period.
 - 2. Warranty includes responsibility for removal and replacement of other work that conceals sheet membrane waterproofing.

PART 2 – PRODUCTS

2.01 HOT-APPLIED MEMBRANE WATERPROOFING

- A. General
 - 1. Comply with quality control, references, specification and manufacturer's data.
 - 2. Products containing asbestos are prohibited. Use only asbestos-free products.

2.02 ACCEPTABLE MANUFACTURERS

- A. Carlisle Coatings and Waterproofing, Inc.
- B. American Hydrotech, Inc.

2.03 MATERIALS / PRODUCTS

- A. Hot-applied liquid membrane system: nominal 215-mil thick, reinforced, hot-applied rubberized asphalt membrane system, consisting of two layers of rubberized asphalt membrane reinforced with polyester fabric meeting the requirements of CGSB-37.50- M89.
- B. Reinforcing fabric: Min. 1.35 oz/square yard spunbond polyester fabric conforming to manufacturer's specifications.
- C. Components / Accessories
 - 1. Surface Primer: Shall be manufacturer's recommended primer or contact adhesive.
 - 2. Flashings: Manufacturer's recommended 90-Mil sheet membrane consisting of a heat resistant woven polypropylene mesh.
 - 3. Mastic / primer: As recommended by the manufacturer.
 - 4. Sealants: Shall be two- component Polyurethane Sealant.
 - 5. Backer Rod: Shall be closed-cell polyethylene foam rod.
 - 6. Protection Board: Heavy duty modified bitumen protection board consisting of a medium weight fiberglass mat as recommended by the manufacturer.
 - 7. Drainage Composite: Heavy duty, min 33,000 psf compression strength as recommended by the manufacturer for use in vehicular traffic areas.

- D. Extruded Polystyrene Insulation - 100 psi: ASTM C578, Type V with either natural or cut cell surfaces with the following characteristics:
 - 1. Board edges: Square
 - 2. Thermal Resistance at 75 degF, per inch, ASTM C518, C177: 5.0
 - 3. Water Absorption ASTM C272: 0.3 percent by volume, maximum.
 - 4. Water vapor permeance, ASTM E96: 0.8 perms
 - 5. Acceptable manufacturers:
 - a. Dow Chemical Company; Styrofoam Highload 100
 - b. Owens Corning; Formular 1000
- E. Fume Recovery System
 - 1. CFM, duel powered, multi-stage mobile, modular media filtration system. Provide Model FRS-6000 as manufactured by Aercology, Inc.

PART 3 – EXECUTION

3.01 PROTECTION

- A. At the start of each work day, drains within daily work area shall be plugged. Plugs are to be removed at the end of each work day.
- B. Waterproofing materials shall be stored in a protected area and shall not be subjected to inclement weather, such as rain or snow, or prolonged exposure to the elements prior to final application. Roll goods and insulation are to be kept dry at all times. Materials stored outdoors shall be covered with a tarpaulin or similar opaque waterproof covering. Insulation stored outdoors shall be stacked on pallets at least four inches above ground and covered as described.
- C. All surfaces to be treated shall be smooth, dry, and free from dirt, debris, and foreign matter before any treatment is initiated. Pumping equipment shall be located on the ground at a safe distance from buildings and shall be subject to the approval of the Owner. The Contractor shall be responsible for exercising all reasonable precautions to avoid fires being started, and shall provide suitable fire extinguishers, which are to be located so that they can be promptly used when required. Competent operators shall be in attendance at all times when equipment is in use. Materials shall be stored neatly in area designated by the Owner's representative, and dispersed so as to ensure a minimum fire hazard. Loads placed on the plaza at any point shall not exceed the safe loading for which the plaza is designed.
- D. Arrange work sequence to avoid use of newly installed waterproofing for storage, walking surface, and equipment movement. Move equipment and ground storage areas as work progresses.
- E. All wet and damp materials must be removed from the job site.

3.02 FUME RECOVERY SYSTEM

- A. System is to be used on a daily basis, whenever roofing bitumen in kettle or tanker is above softening point. System shall be operated at anytime heating of bitumen creates visible fumes or detectable odors. If fumes are present while system is not in use, then bitumen source shall be removed from site.

3.03 GENERAL WORKMANSHIP

- A. Substrate: Free of foreign particles prior to laying waterproofing membrane.
- B. Heat liquid membrane blocks in a twin wall kettle with continuous agitation and apply at 350°F or between temperatures of 325°F to 375°F.
- C. Cleaning
 - 1. Remove asphalt markings from finished surfaces.
 - 2. In areas where finished surfaces are soiled by asphalt or other source of soiling caused by work of this Section, the Contractor shall clean all surfaces to the Owner's satisfaction.
 - 3. Repair or replace defaced or disfigured finishes caused by work of this Section.

3.04 EXAMINATION

- A. Verify surface and site conditions are satisfactory to receive work.
- B. Do not begin installation until all unsatisfactory conditions are corrected. Beginning work constitutes acceptance of conditions.
- C. Verify that work of other trades penetrating plaza deck or requiring men and equipment to traverse roof deck has been approved by Owner, Consultant, manufacturer and waterproofing contractor.
- D. Check projections, curbs, and deck for inadequate anchorage, foreign material, moisture, or unevenness that would prevent proper execution of new waterproofing system.
- E. Confirm dry substrate by moisture meter. Moisture content must be acceptable to system manufacturer for waterproofing system installation.
- F. Condition of concrete surfaces:
 - 1. The concrete surfaces shall be of sound structural grade, 3500 psi minimum, and shall have a wood float or fine broom finish, free of fins, ridges, voids or entrained air holes.
 - 2. Voids, rock pockets and excessively rough surfaces shall be repaired with approved non-shrink grout or ground to match the un-repaired areas.
 - 3. Two-stage drains shall have a minimum three inch flange and be installed with the flange flush and level with the concrete surface.
 - 4. Surfaces at cold joints shall be on the same plane

3.05 SURFACE PREPARATION AND DETAILING

- A. Apply a thin film of recommended primer or contact adhesive 16" wide, centered over sealed cracks and joints. Apply 60-90 mils of liquid membrane to cover primed areas. Install a 12" wide strip of reinforcement centered over joints and cracks greater than 1/16" in width.
- B. Apply recommended primer or contact adhesive at the juncture of all horizontal surfaces and vertical surfaces to the height indicated on the drawings (eight inches min. recommended), such as parapet walls, curbs, columns and all penetrations through the deck at a rate of 500 sq. ft. per gallon. Avoid puddles. Allow primer to dry for 1 hour minimum, 8 hours maximum. Membrane will not properly adhere to wet primer. Apply 60-90 mils of liquid membrane to cover primed areas. Install reinforcement sheet membrane into this first course of liquid membrane to cover the vertical section and extend six inches onto deck surface. Flashing installation may be done during crack and joint treatment or during installation of the first layer of liquid membrane. Completely cover all flashing material during installation of the subsequent layers of liquid membrane.
- C. Apply a thin film of recommended primer or contact adhesive in a four foot square area around drains. Allow primer to dry, one hour minimum, eight hours maximum. Apply 60-90 mils of liquid membrane to cover primed areas. Install a three foot square section of reinforcement over the drain and onto the deck. No splices or seams are allowed within three inches of the drain flange. Terminate the flashing under the clamping ring of the drain and cut away the inner portion of the flashing. Use firm pressure to press the flashing against the liquid membrane surface and ensure good adhesion. Do not interfere with weep holes. Completely cover all flashing material during installation of the subsequent layers of liquid membrane.

3.06 APPLICATION

- A. Apply recommended primer or contact adhesive to all surfaces and at the juncture of all horizontal surfaces and vertical surfaces, to the height indicated on the drawings (eight inches min. recommended), such as parapet walls, curbs, columns and all penetrations through the deck, to receive liquid Waterproofing Membrane, including over flashings, at a rate of 500 sq. ft. per gallon. Avoid puddles. Allow primer to dry for one hour minimum, eight hours maximum. Membrane will not properly adhere to wet primer.
- B. Apply heated liquid Hot Applied Membrane to primed area and any pre-installed flashings at a rate of 18 sq. ft. per gallon or as required to obtain an average thickness of 90 mils.

- C. Apply Reinforcing Fabric and any required flashings while membrane is still warm and tacky. Cut and trim off any wrinkles or overlap sections of the reinforcing fabric or hot the fabric splices together with liquid membrane.
- D. Apply a second coat of liquid Hot Applied Membrane at a rate of 13 sq. ft. per gallon or as required to obtain an average thickness of 125 mils. Total thickness of the liquid membrane system shall be 215 mils.
- E. Apply protection board into the last course of liquid and splice the protection board seams together with liquid membrane.
- F. Install drainage composite over protection board per manufacturer's recommendations.
- G. Install rigid insulation over drainage protection board prior to application of topping slab.

3.07 FIELD QUALITY CONTROL

- A. If requested, all material quantities specified herein shall be verified at the job site by the Consultant to ascertain proper material coverage as called for in these specifications.

END OF SECTION 07 1400

SECTION 07 9200 - JOINT SEALANTS

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Self-leveling pourable joint sealants.
- B. Joint backings and accessories.

1.03 SUBMITTALS

- A. See Section 10 00479 - 10 00479, 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.
- C. 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.

1.04 QUALITY ASSURANCE

- A. 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. 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. Indicate use of photographic record of test.
- B. 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. When performing destructive tests, also inspect the opened joint for proper installation characteristics recommended by manufacturer, and report any deficiencies.
 - 5. Deliver the samples removed during destructive tests in separate sealed plastic bags, identified with project, location, test date, and test results, to Owner.
 - 6. 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.
- C. Destructive Field Adhesion Test: Test for adhesion in accordance with ASTM C1521, using Destructive Tail Procedure.
 - 1. Sample: At least 18 inch long.

2. Minimum Elongation Without Adhesive Failure: Consider the tail at rest, not under any elongation stress; multiply the stated movement capability of the sealant in percent by two; then multiply 1 inch by that percentage; if adhesion failure occurs before the "1 inch mark" is that distance from the substrate, the test has failed.
3. If either adhesive or cohesive failure occurs prior to minimum elongation, take necessary measures to correct conditions and re-test; record each modification to products or installation procedures.

1.05 PROJECT CONDITIONS

- A. Maintain temperature and humidity recommended by the sealant manufacturer during and after installation.
- B. Environmental Conditions: Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside the limits permitted by joint sealant manufacturer or below 40 degF.
 2. When joint substrates are wet due to rain, frost, condensation or other causes.
- C. Joint Width Conditions: Do not proceed with installation of joint sealant when joint widths are less than allowed by joint sealant manufacturer for application indicated.
- D. Joint Substrate Conditions: Do not proceed with installation of joint sealant until contaminants capable of interfering with their adhesion are removed from joint substrates.

PART 2 PRODUCTS

2.01 JOINT SEALANT APPLICATIONS

- A. Scope:
 1. Exterior Joints: Seal open joints, whether or not the joint is indicated on the drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
 - a. Expansion and control joints in concrete slabs.
 - b. Joints between different exposed materials.
 - c. Other joints indicated.
- B. Exterior Joints:
 1. Control and Expansion Joints in Concrete Paving: Self-leveling polyurethane "traffic-grade" sealant.

2.02 SELF-LEVELING SEALANTS

- A. Concrete Paving Joint Sealant: Polyurethane, self-leveling; ASTM C920, Class 25, Uses T, I, M and A; multi- component.
 1. Color: Color as selected by Architect from manufacturer's standard, special order and custom colors.
 2. Applications: Use for:
 - a. Exterior Concrete Paving joints
 3. Products:
 - a. Pecora Corporation; Dynatrol II SG: www.pecora.com.
 - b. BASF Construction Chemicals-Building Systems; SL-2: www.buildingsystems.basf.com.
 - c. Sika Corporation; Sikaflex-2cSL
 - d. Tremco Global Sealants; THC 900 / 901

2.03 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. Closed Cell: 25 to 33 percent larger in diameter than joint width.
- B. Backing Tape / Bond Breaker 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 and release tapes 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. Record each test on Preinstallation Adhesion Test Log as indicated.
 - 4. 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.
 - 5. After completion of tests, remove remaining sample material and prepare joint for new sealant installation.

3.02 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with recommendations of joint sealant manufacturers and the following requirements:
 - 1. Remove all foreign material from joint substrates which could interfere with adhesion of joint sealant, including dust; paints, except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer; oil; grease; water; and surface dirt.
 - 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous surfaces include, but are not limited to, the following:
 - a. Concrete.
 - b. Masonry.
 - 3. Clean nonporous surfaces by chemical cleaners or other means which are not harmful to substrates or leave residues capable of interfering with adhesion of joint sealants. Non-porous surfaces include, but are not limited to, the following:
 - a. Metal.
 - 4. Remove laitance and form-release agents from concrete.

- B. Joint Priming: Prime joint substrates where indicated or recommended by joint sealant manufacturer. Confine primers to areas of joint sealant bond; do not allow spillage or migration to other surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be stained or damaged by such contact or by cleaning methods to remove smears. Remove tape immediately after tooling joint sealant.
- D. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.
- E. Protect elements surrounding the work of this section from damage or disfigurement.

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. 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.
- D. Support sealant from back with backer rod, joint filler, or as recommended by manufacturer.
 - 1. Install joint fillers of type indicated to support sealants during application and at position to allow optimum sealant joint geometry and optimum sealant movement capability.
 - a. Do not stretch, twist, puncture, or tear joint fillers. Do not leave gaps between ends of joint filler pieces.
- E. Install bond breaker backing tape where backer rod cannot be used.
- F. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.
 - 1. Place sealants in manner to directly contact and fully wet joint substrates.
 - 2. Completely fill recesses provided for each joint configuration.
 - 3. Place uniform, cross sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. 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.

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.

3.05 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as work progresses by methods and with cleaning materials approved by manufacturers of joint sealant and of products in which joints occur.

3.06 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances or from damage resulting from construction operations or other causes so they are without deterioration or damage at time of substantial completion.

1. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealant immediately and reseal joints with new materials so repaired areas are indistinguishable from original work.

3.07 POST-OCCUPANCY

- A. Post-Occupancy Inspection: Perform visual inspection of entire length of project sealant joints at a time that joints have opened to their greatest width; i.e. at the low temperature in the thermal cycle. Report failures immediately and repair.

END OF SECTION 07 9200

SECTION 07 9513 - EXPANSION JOINT ASSEMBLIES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Expansion joint cover assemblies for floor surfaces.

1.03 REFERENCE STANDARDS

1.04 SUBMITTALS

- A. See Section 01 33 23 - Shop Drawings, Product Data and Samples, for submittal procedures.
- B. Product Data: Provide joint assembly profiles, profile dimensions, anchorage devices and available colors and finish.
- C. Shop Drawings: Indicate joint and splice locations, miters, layout of the work, effected adjacent construction and anchorage locations.
- D. Manufacturer's Installation Instructions: Indicate rough-in sizes and required tolerances for item placement.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Expansion Joint Cover Assemblies:
 - 1. Balco, Inc.
 - 2. Conspec Systems, Inc.
 - 3. MM Systems Corp.
 - 4. Watson-Bowman-Acme.
- B. Substitutions: See Section 01 25 00 - Substitution Procedures.

2.02 EXPANSION JOINT COVER ASSEMBLY APPLICATIONS

- A. Deck/Paving Joints:
 - 1. Products:
 - a. Watson Bowman Acme; Wabocrete ME-300 with elastomeric header

2.03 EXPANSION JOINT COVER ASSEMBLIES

- A. Expansion Joint Cover Assemblies - General: Factory-fabricated and assembled; designed to completely fill joint openings, sealed to prevent passage of air, dust, water, smoke; suitable for traffic expected.
 - 1. Joint Dimensions and Configurations: As indicated on drawings.
 - 2. Lengths: Provide covers in full lengths required; avoid splicing wherever possible.
 - 3. Anchors, Fasteners, and Fittings: Provided by cover manufacturer.

2.04 MATERIALS

- A. Thermoplastic Rubber: Profile design shall incorporate integral side flanges exhibiting a pronounced serrated profile and factory punched holes that interlocks the profile into the elastomeric header material.
- B. Elastomeric Header: Material shall be an ambient cure, 100% solids, two component polyurethane with pregraded aggregate mix exhibiting the physical properties listed in the tables below. When properly mixed and poured, the elastomeric concrete cures rapidly, flows and fills any voids, spalls or irregularities forming a monolithic unit.
- C. Accessories: Provide all necessary accessories and bonding agents for a complete installation.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify joint preparation and affected dimensions are acceptable.

3.02 PREPARATION

- A. Install anchoring devices in conformance to templates.
- B. Prepare blockout to meet manufacturers written requirements.

3.03 INSTALLATION

- A. Install components and accessories in accordance with manufacturer's instructions.
- B. Align work plumb and level, flush with adjacent surfaces.
- C. Rigidly anchor to substrate to prevent misalignment.

3.04 PROTECTION

- A. Do not permit traffic over unprotected floor joint surfaces.

END OF SECTION 07 9513

SECTION 09 2300 - GYPSUM PLASTER PATCHING AND REPAIR

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Repair/replace gypsum plaster over new and existing gypsum lath.
- B. Replacing delaminated areas of plaster
- C. Patching holes in walls and ceilings
- D. Gypsum lath.

1.03 REFERENCE STANDARDS

- A. ASTM C28/C28M - Standard Specification for Gypsum Plasters; 2010.
- B. ASTM C206 - Standard Specification for Finishing Hydrated Lime; 2014.
- C. ASTM C631 - Standard Specification for Bonding Compounds for Interior Gypsum Plastering; 2009.
- D. ASTM C841 - Standard Specification for Installation of Interior Lathing and Furring; 2003 (Reapproved 2013).
- E. ASTM C842 - Standard Specification for Application of Interior Gypsum Plaster; 2005 (Reapproved 2010)e1.
- F. ASTM C1396/C1396M - Standard Specification for Gypsum Board; 2014.

1.04 SUBMITTALS

- A. See Section 01 3323 - Shop Drawings, Product Data, and Samples, for submittals procedures.
- B. Product Data: Provide data on plaster materials, characteristics, and limitations of products specified.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Company specializing in performing historic plaster repairs with minimum 10 years of documented experience.

1.06 FIELD CONDITIONS

- A. Do not apply plaster when substrate or ambient air temperature is under 50 degrees F or over 80 degrees F.
- B. Maintain minimum ambient temperature of 50 degrees F during and after installation of plaster.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Gypsum Plaster:
 - 1. National Gypsum Company; : www.nationalgypsum.com.
 - 2. USG; : www.usg.com.
 - 3. Substitutions: See Section 01 6000 - Common Product Requirements.

2.02 GYPSUM PLASTER ASSEMBLIES

- A. Fire Rated Assemblies: Provide completed assemblies matching existing to maintain fireprotection of structure.

2.03 PLASTER MATERIALS

- A. Gypsum Neat Plaster: ASTM C28/C28M; fibered.
- B. Lime: ASTM C206, Type S; special finishing hydrated lime.
- C. Ready-Mixed Finishing Plaster: Gypsum/Lime putty type, ASTM C28/C28M; mixture of gauging plaster and lime.
- D. Aggregate for Finish Coats: As specified in ASTM C842.
- E. Water: Clean, fresh, potable and free of mineral or organic matter that could adversely affect plaster.
- F. Bonding Agent: ASTM C 631; type recommended for bonding plaster to plaster base surfaces.

2.04 LATH ACCESSORIES

- A. Gypsum Lath: ASTM C1396/C1396M, standard type.
- B. Beads, Screeds, Joint Accessories, and Other Trim: Depth governed by plaster thickness, maximum possible lengths.
 - 1. Material: Formed sheet steel with rust inhibitive primer, expanded metal flanges. Match profiles to existing.
- C. Fasteners: Nails, staples, or other approved metal supports, of type and size to suit application, to rigidly secure accessories in place.

2.05 PLASTER MIXES

- A. Over Gypsum Lath: Three-coat application, gypsum neat plaster and sand mixed and proportioned per ASTM C 842.
- B. Finish Coat for Troweled Finish: Lime putty with gypsum gauging plaster, mixed and proportioned per ASTM C 842.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verify existing conditions are satisfactory before starting work.
- B. Lath and Accessories: Verify substrate is flat and surface is ready to receive work of this section. Verify joint and surface perimeter accessories are in place.

3.02 PREPARATION

- A. Where patching plaster that has not deteriorated down to the lath, apply bonding agent on existing base in preparation for a new finish coat.

3.03 PATCHING HOLES

- A. Locations involving the loss of brown and finish coats (base coat is intact and sound):
 - 1. Small holes (less than 4 inches in diameter): Perform repair in two applications. Use bonding agent where necessary to facilitate bond between brown and scratch coat.
 - a. Apply layer of basecoat plaster and scrape back to below the level of the existing adjacent finish coat. After coating has set but not dried apply final coat to create a smooth level surface.
- B. Locations where all three coats of plaster are damaged:
 - 1. Clean out old plaster and resecure wood lath. Remove chunks of existing plaster from between exposed lath to allow patch to key into lath.
 - 2. Thoroughly soak the wood lath to prevent warping and promote bonding. Apply bonding agent as required to improve bond between plaster and lath.
 - 3. Attach expanded metal lath to the wood lath with tie wires and nail over lath with lath nails.

4. Apply three layers of plaster over the metal lath, lapping each layer of plaster over the old plaster so that the old and new are evenly joined.
5. If patch is in a surface that is wavy, contour the patch to conform to the irregularities of the existing work.

C. Finish coats of all patching work should be Lime putty with gauging plaster.

3.04 INSTALLATION - GYPSUM LATH AND ACCESSORIES

- A. Install gypsum lath in accordance with ASTM C841.
- B. Install gypsum lath perpendicular to framing members, with lath face exposed. Stagger end joint of alternate courses. Butt joints tight. Maximum gap allowed: 1/8 inch.
- C. Place corner reinforcement diagonally over gypsum lath and across corner immediately above and below openings. Secure to gypsum lath only.
- D. Continuously reinforce internal angles with corner mesh, return 3 inches from corner to form the angle reinforcement; fasten at perimeter edges only.
- E. Place corner bead at external wall corners; fasten at outer edges of lath only.
- F. Place strip mesh diagonally at corners of lathed openings. Secure rigidly in place.
- G. Place 4 inch wide strips of strip mesh centered over junctions of dissimilar backing materials. Secure rigidly in place.
- H. Place casing beads at terminations of plaster finish. Butt and align ends. Secure rigidly in place.

3.05 PLASTERING

- A. Apply gypsum plaster per ASTM C 842 and manufacturer's instructions.
- B. Finish Texture: Provide a consistent appearance; match existing adjacent.

3.06 TOLERANCES

- A. Maximum Variation from True Flatness: 1/8 inch in 10 feet.

END OF SECTION 09 2300

SECTION 09 9100 - PAINTING

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Division 00 - Procurement and Contracting Requirements, and Division 01 - General Requirements, are hereby made part of this Section.

1.02 SECTION INCLUDES

- A. Extent of painting work is shown on Drawings and Schedules and by provisions of this Section.
- B. "Paint" includes coating systems materials, primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.
- C. Paint exposed surfaces whether or not colors or finishes are designated in "schedules", except where a surface or material is specifically indicated not to be painted or is to remain natural. Where an item or surface is not specifically mentioned, paint the same as similar adjacent materials or surfaces.
1. If color of finish is not designated, the Architect will select from colors or finishes specified.
- D. Painting is not required on prefinished items, finished metal surfaces, concealed surfaces, operating parts and labels.
1. Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.03 DEFINITIONS

- A. General: Standard coating terms defined in ASTM D 16 apply to this Section.
- B. Sheen: As defined by the Master Painters Institute (MPI).
1. Wherever reference is made to sheen finish or gloss, provide reflectivity, when measured with a gloss meter per ASTM D 523, as follows for each designation:

	Designation	60 degree units	85 degree units
Level 1	Flat	5 maximum	10 maximum
Level 2	Velvet	10 maximum	10 to 35
Level 3	Eggshell	10 to 25	10 to 35
Level 4	Satin	20 to 35	35 minimum
Level 5	Semi-gloss	35 to 70	N/A
Level 6	Gloss	70 to 85	N/A
Level 7	High Gloss	greater than 85	N/A

1.04 SUBMITTALS

- A. See Section 01 3323 - Shop Drawings, Product Data and Samples, for submittal procedures.
- B. Product Data: Submit product data for each paint system specified including block fillers and primers.
1. Provide manufacturer's technical information including label analysis and instructions for handling, storage and application of each material proposed for use.
2. List each material and cross-reference the specific coating, finish system and application. Identify each material by the manufacturer's catalog number and general classification.
3. Provide certification by manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).
- C. Samples for Initial Verification Purposes: Provide samples of each color, sheen and material to be applied, with texture to simulate actual conditions, on 12 inch by 12 inch card stock.
1. Samples submitted must be dry.
2. Resubmit until required color, sheen and texture is achieved.

3. Do not order paint materials until Architect has reviewed and accepted samples for initial verification.

1.05 QUALITY ASSURANCE

- A. Single Source Responsibility: Provide primers and undercoat paint produced by same manufacturer as finish coats. Use only thinners approved by paint manufacturer, and use only within recommended limits.

1.06 FIELD SAMPLES

- A. Field Samples: On wall surfaces and other exterior and interior components, duplicate finishes of prepared samples.
 1. Architect will select one room or surface to represent surfaces and conditions for each type of coating and substrate to be painted.
 - a. Apply coatings in room or surface in accordance with schedule or as specified.
 - b. After finishes are accepted, room or surface will be used for evaluation of coating systems of a similar nature.

1.07 DELIVERY, STORAGE, AND PROTECTION

- A. Deliver materials to job site in manufacturer's original, unopened packages and containers bearing manufacturer's name and label and the following information:
 1. Product name or title of material.
 2. Product description (generic classification or binder type).
 3. Federal Specification number, if applicable.
 4. Manufacturer's stock number and date of manufacture.
 5. Contents by volume, for pigment and vehicle constituents.
 6. Thinning instructions.
 7. Application instructions.
 8. Color name and number.
- B. Store materials not in use in tightly covered containers in well ventilated area at minimum ambient temperature of 45 degF (7 degC). Maintain containers used in storage in a clean condition, free of foreign materials and residue.
 1. Protect from freezing. Keep storage areas neat and orderly. Remove oily rags and water daily. Take necessary measures to ensure workers and work areas are protected from fire and health hazards resulting from handling, mixing and application.

1.08 LEAD PAINT

- A. This building was built prior to 1978, therefore the Contractor will assume that all existing painted surfaces may be contaminated and plan their work accordingly. Include within the Work any remediation efforts, removal efforts, abatement, testing, monitoring and disposal required to comply with all applicable, local, state and federal regulations.
- B. The Contractor is responsible for compliance with all requirements related lead containing paint.

1.09 ENVIRONMENTAL REQUIREMENTS

- A. Apply water-based paints only when temperature of surfaces to be painted and surrounding air temperature are between 50 degF (10 degC) and 90 degF (32 degC).
- B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperature are between 45 degF (7 degC) and 95 degF (35 degC).
- C. Do not apply paint in snow, rain, fog or mist, when relative humidity exceeds 85 percent, at temperatures less than 5 degF (3 degC) above the dew point, or to damp or wet surfaces.
 1. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by manufacturer during application and drying periods.
- D. Do not apply paint where conditions of airborne debris or contamination exist or could exist.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements including color selection, provide products of one of the following:
 - 1. Benjamin Moore and Co.(Moore)
 - 2. PPG Industries, Pittsburgh Paints(PPG)
 - 3. The Sherwin-Williams Co.(SW)
- B. Substitutions: See Section 01 2500 - Substitution Procedures.

2.02 MATERIALS

- A. Material Compatibility: Provide block fillers, primers, finish coat materials and related materials compatible with one another and the substrates indicated under conditions of service and application as demonstrated by manufacturer based on testing and field experience.
- B. Material Quality: Provide manufacturer's best quality trade sale paint material of the various coating types specified. Paint material containers not displaying manufacturer's product identification will not be acceptable.
- C. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.
- D. Colors: Acceptability of any manufacturer is contingent upon availability of colors, sheens and textures matching those indicated on Room Finish Schedule as acceptable to Architect.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrates and conditions under which painting will be performed for compliance with paint application requirements. Surfaces receiving paint must be thoroughly dry before paint is applied.
 - 1. Do not begin to apply paint until unsatisfactory conditions have been corrected.
 - 2. Start of painting will be construed as Applicator's acceptance of surfaces and conditions within a particular area.
- B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
 - 1. Notify Architect about anticipated problems using materials specified over substrates primed by others.

3.02 PREPARATION

- A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures and similar items already installed that are not to be painted. Where removal is not practical, provide surface-applied protection prior to surface preparation and painting.
 - 1. Do not remove Underwriter's Laboratories, Factory Mutual or other code-required labels or equipment names, identification, performance rating or nomenclature plates.
 - 2. Protect adjacent surfaces with suitable covering or other method during work progress. Mask, or protect with suitable coverings, sealing and glazing compound, glass, gauges, moving parts of machinery and other mechanical equipment such as valve stems, sprinkler heads and similar items.
 - 3. After completion of painting operations, reinstall items removed using workers skilled in trades involved.
- B. Cleaning: Before applying paint or other surface treatments, clean new and previously painted (existing) substrates of substances that could impair the bond of the various coatings. Remove oil and grease prior to cleaning.
 - 1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
- C. Surface Preparation: Clean and prepare surfaces to be painted in conformance with manufacturer's instructions for each particular substrate condition and specified.

1. Provide barrier coats over incompatible primers or remove and reprime. Notify Architect in writing about anticipated problems using specified finish-coat material with substrates primed by others.
2. Cementitious Materials: Prepare concrete and concrete masonry surfaces to be painted. Remove efflorescence, chalk, dust, dirt, grease, oils and release agents. Roughen as required to remove glaze. If hardeners and sealers have been used to improve curing, use mechanical methods of surface preparation.
 - a. Use abrasive blast-cleaning methods if recommended by paint manufacturer.
 - b. Determine alkalinity and moisture content of surfaces by performing appropriate tests. If surfaces are sufficiently alkaline to cause the finish to blister and burn, correct this condition before application.
 - 1) Do not paint surfaces where moisture content exceeds that permitted in manufacturer's written instructions.
 - c. Clean concrete floors to be painted with a 5 percent muriatic acid solution or other etching cleaner. Flush floor with clean water to remove acid, neutralize with ammonia, rinse, allow to dry, and vacuum.
- D. Materials Preparation: Carefully mix and prepare paint materials per manufacturer's directions.
 1. Maintain containers used in mixing and applying paint in clean condition, free of foreign materials and residue.
 2. Stir material before application to produce a mixture of uniform density; stir as required during application.
 - a. Do not stir surface film into material. Remove film and, if necessary, strain material before using.
 3. Use only thinners approved by painting manufacturer and only within recommended limits.
- E. Tinting: Tint each undercoat a lighter shade to facilitate identification of each coat where multiple coats of the same material are applied. Tint undercoats to match color of finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

3.03 APPLICATION

- A. Apply paint per manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.
- B. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces or conditions detrimental to formulation of a durable paint film.
 1. Paint colors, surface treatments and finishes as indicated in schedules.
 2. Provide finish coats compatible with primers used.
 3. The number of coats and film thickness required is the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by the manufacturer.
 - a. Sand between applications where sanding is required to produce an even smooth surface per manufacturer's directions.
 - b. Give special attention to ensure surfaces, including edges, corners, crevices, welds and exposed fasteners receive a dry film thickness equivalent to flat surfaces.
 4. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles and similar components are in place. Extend coatings in these areas as required to maintain system integrity and provide desired protection.
- C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
 1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until previous coat has cured as recommended by manufacturer.
 - a. Sand between applications where sanding is required to produce an even smooth surface per manufacturer's directions.

2. Apply additional coats if undercoats, stains, and other conditions show through final coat of paint until paint film is of uniform finish, color, and appearance.
 - a. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to flat surfaces.
 3. Allow sufficient time between successive coats to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky or moderate thumb pressure and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
- D. Application Procedures: Apply paints and coating by brush, roller, spray or other applicators per manufacturer's directions.
- E. Minimum Coating Thickness: Apply materials no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of entire system as recommended by manufacturer.
- F. Prime Coats: Before applying finish coats, apply a prime coat of material as recommended by manufacturer to material required to be painted or finished and not prime coated by others.
 1. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to assure a finish coat with no burn through or other defects due to insufficient sealing.
- G. Pigmented (Opaque) Finishes: Completely cover to provide a smooth opaque surface of uniform finish, color, appearance and coverage.
 1. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.
- H. Completed Work: Match approved samples for color, sheen texture and coverage. Remove, refinish or repaint work not complying with specified requirements.

3.04 CLEANING AND PROTECTION

- A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish and other discarded paint materials from the site.
 1. After completion of painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
- B. Protect work of other trades, whether to be painted or not, against damage by painting. Correct damage by cleaning, repairing or replacing, and repainting as acceptable to Architect.
- C. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
 1. At completion of construction activities of other trades, touchup and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.05 INTERIOR PAINT SCHEDULE

- A. General: Provide the following paint systems for the various substrates indicated.
- B. Plaster:
1. Low Luster, Acrylic Finish: 2 finish coats over a primer.
 - a. Primer: Alkali-resistant, acrylic-latex primer applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 3.2 mils.
 - 1) Moore: Fresh Start All Purpose 100% Acrylic Int/Ext Latex Primer #023.
 - 2) PPG:4-603 Perma-Crete Int/Ext Alkali Resistant Primer.
 - 3) SW: Loxon Masonry Primer A24W8300
 - b. First and Second Coats: Low-luster, acrylic-latex paint applied at spreading rate recommended by manufacturer to achieve a total dry film thickness of not less than 2.4 mils.
 - 1) Moore: EcoSpec WB Interior Latex Flat 373
 - 2) PPG:Speedhide Zero VOC Latex Flat 6-4100 Series

3) SW: ProMar 200 Zero VOC Interior Flat B30-2600 Series

END OF SECTION 09 9100