



8 North St. Clair
Toledo, Ohio 43604
419.243.2400
ThomasPorterArchitects.com



**Maumee City Schools
MCS Concrete Replacement**

Gateway Middle School
900 Gibbs Street
Maumee, Ohio 43537

TPA Commission No. 19060
July 2021

Prepared for:

Maumee City Schools
716 Askin Street
Maumee, Ohio 43537

Board of Education:

Ms. Stephanie Peichowiak - President
Ms. Janet Wolff – Vice President
Ms. Diane Balcerzak
Ms. Jennifer Campos
Mr. Mike Wiley

Dr. Todd Cramer – Superintendent
Steve Lee – Assistant Superintendent
Paul Brotzki – District Treasurer

TABLE OF CONTENTS

GENERAL INFORMATION

Project Directory	1
Notice to Bidders	1

BIDDING DOCUMENTS

Instructions to Bidders	11
Bid Proposal Form	6
Substitution Request Form	1
Form of Bid Guaranty and Contract Bond	3
Contractor's Personal Property Tax Affidavit	1
Owner's Tax Exemption Certificate	1
Construction Contract Exemption Certificate	1

CONDITION OF THE CONTRACT

General Conditions of the Construction Contract	6
(AIA Document A201-1997) available from TPA <u>upon request</u>	

DIVISION ONE – GENERAL REQUIREMENTS

Section 01010 – Summary of Work	4
Section 01019 – Contract Considerations	3
Section 01027 – Applications for Payment	5
Section 01030 – Alternates	2
Section 01035 – Modification Procedures	5
Section 01200 – Project Meetings	3
Section 01270 – Unit Prices	1
Section 01300 – Submittals	2
Section 01340 – Shop Drawings, Product Data and Samples	7
Section 01400 – Quality Control	3
Section 01501 – Temporary Facilities & Controls	5
Section 01600 – Materials & Equipment	3
Section 01700 – Contract Closeout	4

DIVISION TWO –SITE WORK

Section 029200 – Lawn and Grasses	9
---	---

DIVISION THREE – CONCRETE

Section 033000 – Cast-In-Place Concrete	19
Section 033200 – Concrete Reinforcement	3

DIVISION FIVE – METALS

Section 055213 – Pipe and Tube Railings	8
---	---

PROJECT DIRECTORY

Owner:

Maumee City Schools
716 Askin Street
Maumee, Ohio 43537
Phone: 419.893.1392
Email: lburda@maumeeek12.org
Contact: Larry Burda, Facilities Manager

Architect:

Thomas Porter Architects
8 N. St. Clair Street
Toledo, Ohio 43604
Phone: 419.243.2400 x307
Email: andrew.hofbauer@porterarch.com
Contact: Andrew Hofbauer

NOTICE TO BIDDERS

Sealed proposals will be received for the Concrete Replacement Project – Maumee City Schools, Maumee Ohio 43537 by the Maumee City School Board no later than **1:00 pm, EST on August 17, 2021**. Proposals must be delivered to the Office of the Treasurer, Maumee City Schools, Board of Education Administrative Offices, 716 Askin Street, Maumee, Ohio 43537. Proposals will be read publicly immediately following at the Board of Education Administrative Offices. Proposals received after the date and time shall be considered late and will be returned to the submitting party unopened.

Project will consist of but not limited to the removal and replacement of site concrete surfaces including sidewalks, entry stoops, steps, handrails and an accessible ramp. All work shall be in accordance with the plans and specifications. A single contract will be issued for all work.

Total estimated project budget: **\$115,000.00**

- Base Combined Bid: \$100,000
- Add Alternate "MS1": \$14,000
- Add Alternate "MS4": \$1,000

In accordance with the Plans and Specifications Prepared by:

Thomas Porter Architects

8 N. St. Clair Street

Toledo, Ohio 43604-1028

Phone: (419) 243-2400 x307

Email: Andrew Hofbauer andrew.hofbauer@porterarch.com

CONTRACTORS may obtain Electronic (PDF) format and/or Hardcopy sets of the Bid Documents directly from Newfax Corporation, 333 W. Woodruff Avenue, Toledo, Ohio 43604, Phone 419-241-5157, FAX 419-241-2018 <http://www.newfaxcorp.com/>. A non-refundable fee will be required for each set of Bidding Documents and Contract Documents provided by Newfax Corp. Checks shall be made payable to Newfax Corp.

Neither Owner nor Architect has any responsibility for the accuracy, completeness or sufficiency of any bid documents obtained from any source other than the source indicated in these documents. Obtaining these documents from any other source(s) may result in obtaining incomplete and inaccurate information. Obtaining these documents from any source other than directly from the source listed herein may also result in failure to receive any addenda, corrections, or other revisions to these documents that may be issued.

A pre-bid meeting will be held on Friday **August 6th, 2021 at 1:30 pm, EST** at Gateway Middle School – 900 Gibbs Street, Maumee, Ohio 43537 for site observation and discussion. Bidders can park/gather along Sackett Street.

Bids shall be received on the Form of Bid Proposal furnished. No other form will be accepted. Maumee City Schools reserves the right to waive irregularities in the bids and to reject any or all proposals or parts of any or all proposals. No bidder may withdraw their bid within sixty (60) days after bid opening.

Maumee City Schools
END OF NOTICE TO BIDDERS

INSTRUCTIONS TO BIDDERS

A. EXAMINATION OF DOCUMENTS AND SITE CONDITIONS

1. Bidders are cautioned to review carefully the existing conditions and all parts of the Contract Documents included in or referenced in the Project Manual, including, but not limited to, the Instructions to Bidders, Bid Form, Owner-Contractor Agreement, General Conditions of the Contract for the Project, Special Conditions (if any), Project Schedule, Drawings, and Specifications. For access to the site, the Bidder should contact Larry Burda, Maumee City Schools, 419.893.1392 to make arrangements to visit the site at an acceptable time. These Contract Documents shall become the basis for the contract between the Owner and the successful Bidder, as defined in the Owner-Contractor Agreement, and govern the relationship between the successful Bidder and the Owner when the Owner-Contractor Agreement is executed.

2. No allowance will be made subsequently for any omission, error or negligence of the Bidder.

B. OWNER, ARCHITECT

- | | | |
|----|-------------------|--|
| 1. | The Owner is: | The Board of Education of
Maumee City Schools
716 Askin Street
Maumee, Ohio 43537-3799
Phone: 419.893.1392
Email: lburda@maumeek12.org
Contact: Larry Burda |
| 2. | The Architect is: | Thomas Porter Architects
8 N. St. Clair Street
Toledo, Ohio 43604
Phone: 419-243-2400 x307
Email: andrew.hofbauer@porterarch.com
Contact: Andrew Hofbauer |

C. PROJECT

The Project consists of all labor, materials, and services necessary for the timely and proper completion of the project – MCS Concrete Replacement - Maumee City Schools –Maumee High School/Gateway Middle School/Wayne Trail Elementary School - for the Owner (Maumee City Schools), all in accordance with the Contract Documents.

D. WORK

Project will consist of but not limited to the removal and replacement of site concrete surfaces including sidewalks, entry stoops, steps, handrails and a new accessible ramp. All work shall be in accordance with the plans and specifications. A single contract will be issued for all work. The bid documents request costs for the following scopes of work:

F. ESTIMATE OF CONSTRUCTION COST

The total project estimate is: \$115,000

- Base Combined Bid: \$100,000
- Add Alternate "MS1": \$14,000
- Add Alternate "MS4": \$1,000

G. DOCUMENTS INCLUDE

1. Instructions to Bidders
2. Bid Form
3. Substitution Request Form
4. Form of Bid Guaranty and Contract Bond
5. Form of Contract Bond
6. Contractor's Personal Property Tax Affidavit (R.C. § 5719.042)
7. Owner's Tax Exemption Certificate
8. Construction Tax Exempt Form
9. General Conditions of the Contract available upon request from Thomas Porter Architects
10. Project Specifications
11. Drawings (see drawing cover sheet for list)

AVAILABILITY OF DOCUMENTS. CONTRACTORS may obtain Electronic (PDF) format and/or Hardcopy sets of the Bid Documents directly from Newfax Corporation, 333 W. Woodruff Avenue, Toledo, Ohio 43604, Phone 419-241-5157, FAX 419-241-2018 <http://www.newfaxcorp.com/>. A non-refundable fee will be required for each set of Bidding Documents and Contract Documents provided by Newfax Corp. Checks shall be made payable to Newfax Corp.

H. PRE-BID MEETING

A pre-bid meeting will be held on Monday **August 6th, 2021, at 1:30 pm**, at Gateway Middle School – 900 Gibbs Street, Maumee, Ohio 43537 to observe areas of work along Sackett Street.

Bidders who desire to visit the site at other times or dates must make arrangements with the School District, Larry Burda, 419.893.1392 prior to visiting the site.

I. PREPARATION OF BIDS

1. All bids must be submitted on the "Bid Form" furnished in the Project Manual.
2. All blank spaces shall be filled in, in ink or typewritten, in words and figures, and in figures only where no space is provided for words and signed by the Bidder. The wording on the Bid Form shall be used without change, alteration or addition. Any change in the wording or omission of specified accompanying documents may cause the bid to be rejected.
3. Bidders shall note receipt of Addenda on the Bid Form.
4. Each Bidder shall submit two (2) identical copies of its bid to the Owner. Bids shall be signed with the name typed or printed in ink below the signature. Bids shall not be submitted by facsimile transmission. A Bidder that is a corporation shall sign its bid with the legal name of the corporation followed by the name of the state of incorporation and the legal signature of an officer authorized to bind the corporation to a contract.
5. Bids shall be enclosed in a sealed opaque envelope with the Bidder's name, the name of the Bid Package, and title of Project printed in the upper left-hand corner, and addressed as follows:

Paul Brotzki, Treasurer
Maumee City Schools
716 Askin Street
Maumee, Ohio 43537-3799

Instructions for delivery of bids and information on the bid opening are contained in Paragraph H (12).

6. The completed Bid Form shall be accompanied by the Bidder's Bid Guaranty (see Paragraph H (8) below).

7. The Bidder shall take the following precautions in preparing its Bid:

- a. Sign the Bid Form and check to insure all blank spaces are filled in with requested information and that the Bid Guaranty is included in a sealed opaque envelope addressed as provided in Paragraph 5 above.
- b. Where the Bid Form provides for quoting either an addition or deduction for an Alternate item, indicate whether the sum named is an addition or deduction.
- c. Where the Bid Form provides for quoting a unit price, the Bidder should quote the unit price.
- d. When applicable, make sure that the Bid Guaranty is properly executed and signed by:
 - 1) The Bidder
 - 2) The Surety or Sureties
- e. Make sure that the amount of the Bid Guaranty is for a specific sum in an amount as instructed in Paragraph H(8)(a) below or the amount is left blank.

8. Bonds and Guarantees

- a. Bid Guaranty: Bidder shall furnish a Bid Guaranty, as prescribed in Section 153.54 of the Ohio Revised Code, in the form of either: (1) a bond for the full amount of the bid (including add alternates) in the form of the Bid Guaranty and Contract Bond included in the Contract Documents; or (2) a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the amount of the bid (including add alternates).
- b. Contract Bond: The successful Bidder who, as a Bid Guaranty, submits a certified check, cashier's check, or irrevocable letter of credit in an amount equal to 10% of the amount of the bid, shall furnish to the Architect a Contract Bond in the form included in the Contract Documents in an amount equal to 100% of the Contract Sum within three (3) days of being notified of the Owner's intent to award the contract to the successful Bidder.
- c. All bonds must be issued by a surety company authorized by the Ohio Department of Insurance to transact business in the State of Ohio. The bond must be issued by a surety capable of demonstrating a record of competent underwriting, efficient management, adequate reserves, and sound investments. These criteria will be deemed to be met if the surety currently has an A.M. Best Company Policyholders Rating of "A-" or better and has or exceeds the Best Financial Size Category of Class VI; other sureties may be determined acceptable by the Owner.
- d. All bonds shall be signed by an authorized agent of an acceptable Surety Bonding Company and by the Bidder. (Affix Corporate Seals to all copies.)

- e. Surety Bonding Company bonds shall be supported by credentials showing the Power of Attorney of the agent, a certificate showing the legal right of the Bonding Company to do business in the State of Ohio, and a financial statement of the Surety.
 - f. The Bid Guaranty, as applicable, shall be in the name of or payable to the order of the Owner.
 - g. The name and address of the Surety and the name and address of the Surety's Agent must be typed or printed on each bond.
9. Bidder's Examination and Representation.
- a. Before submitting a bid, each Bidder should carefully examine the documents and the construction site and inform itself of the limitations and conditions related to the Work covered by the bid and shall include in its bid a sum to cover the cost of such items. Bidders awarded contracts will not be given extra payments for conditions that could have been determined by examining the site and documents.
 - b. It is the purpose and intent of the Contract Documents that a complete job be accomplished. It shall be each Bidder's responsibility to include costs necessary to provide labor and materials for that portion of the Work bid upon, including incidentals, whether or not specifically called for in the Specifications and Drawings.
10. Clarification of Bidders' Questions
- a. Questions for this Project shall be directed to the Architect.
 - b. Each Bidder is responsible for calling to the attention of the Architect any ambiguities, inconsistencies, errors, or omissions which occur in the Contract Documents for its part of the Work. If the Bidder fails to request clarification, the Bidder will be expected to overcome such conditions without additions to the bid price.
 - c. Prospective Bidders with questions as to the true meaning of any part of the Drawings, Specifications, or other Contract Documents shall submit to the Architect, **by August 10th, 2021**, a written request for interpretation and clarification.
 - d. Bidders are instructed to request interpretations and the issuing of addenda if the Contract Documents call for materials, equipment, or methods that adversely affect the cost or quality of the Project or are unavailable.
11. Combined Bids. The Owner may provide the option of submitting a combined bid on the Bid Form
- a. When there is an option for submitting a combined bid on the Bid Form, a bidder desiring to submit a combined bid for two or more base bid Areas of Work shall indicate both its combined bid amount and separate base bids for the separate Areas of Work in the places provided on the Bid Form.
 - b. The individual cost amounts of each base bid (including alternatives) shall be indicated in the appropriate spaces for each and every base bid included under the combined bid.
12. Bid Opening. Bids will be accepted until **1:00 p.m., local time, on August 17th, 2021** at the MCS Administration Building, 716 Askin Street, Maumee, Ohio 43537, and will be

opened publicly and read immediately thereafter in the Maumee City Schools Board Room. Proposals received after the date and time shall be considered late and will be returned to the submitting party unopened.

J. METHOD OF AWARD

1. The Owner will receive bids for the Bid Package identified in these Instructions to Bidders.

Subject to the right of the Owner to reject any and all bids and as provided below, the Owner will award a single contract for the Project identified in these Instructions to Bidders. Bidders must furnish all information requested on or accompanying the Bid Form. Failure to do so may result in disqualification of the bid.

2. Determination of Lowest Responsible Bid

Subject to the right of the Owner to reject any or all bids, the Owner will award the Contract for the Work to the Bidder submitting the lowest responsible and responsive bid, taking into consideration accepted alternates. The Owner, in its sole discretion, will determine whether a bid is responsive to the specifications or whether bidder is responsible. The Owner reserves the right to conduct such investigations as it deems necessary to assist in the evaluation of any bid and to establish the responsibility, qualifications and financial ability of the Bidders or any proposed subcontractors. In determining whether a bid is responsive or a bidder is responsible, the Owner may consider the following criteria and such other criteria as it determines proper:

a. The Bidder's work history.

The Bidder should have a record of consistent customer satisfaction and of consistent completion of projects, including projects which are comparable to or larger and more complex than the Owner's Project, on time and in accordance with the respective contract documents. If the Bidder's management (i.e., president, chairman of the board, or any director) operates or has operated another construction company, the Owner may consider the work history of that company in determining responsibility of the Bidder.

The Owner will consider the Bidder's prior experience on other projects of the Owner and/or Architect, including the Bidder's demonstrated ability to complete its work on these projects in accordance with the Contract Documents and on time and its ability to work with the Owner and/or Architect.

The Bidder authorizes the Owner and its representatives to contact the owners and design professionals on projects on which the Bidder has worked and authorizes and requests such owners and design professionals to provide the Owner with a candid evaluation of the Bidder's performance. By submitting its bid, the Bidder agrees that if it or any person at its urging, directly or indirectly, brings an action against any of such owners or design professionals or their employees as a result of or related to such candidate evaluation and such action is not successful, the Bidder will reimburse such owners, design professionals and/or their employees for all legal fees and expenses incurred by them that are related to such legal action, including the cost of collection. This obligation is expressly intended for the benefit of such owners, design professionals and their employees.

b. The Bidder's resources, including but not limited to the financial ability to complete the Contract successfully and on time without resort to its Surety and the experience, adequacy, and numbers of the Bidder's work force.

- c. The Bidder's compliance with federal, state, and local laws, rules, and regulations, including but not limited to the Occupational Safety and Health Act.
 - d. The foregoing information with respect to each of the Subcontractors that the Contractor intends to use on the Project.
 - e. Depending upon the type of the work, other essential factors, as the Owner may determine.
3. Within three (3) business days after receipt of the bids, the apparent low Bidder, and any other bidder requested by the Architect or Construction Consultant, will complete and submit to the Architect the following documents, as requested by the Architect:
- a. AIA Document A305, Contractor Qualifications Statement, and the information required by the supplement to that document, and thereafter will provide the Architect with such additional information as the Architect may request. A Bidder will submit any requested information within three (3) business days of the request.
 - b. The list of all proposed Subcontractors, suppliers, and manufacturers.
 - c. The breakdown of Labor and Material for the Project, including the sum for each, on AIA Document G702, Schedule of Values.
 - d. Affidavit as to Property Taxes, in the form included with the Contract Documents. After approval by the Owner, Construction Consultant, and Architect of the list of proposed Subcontractors, suppliers, and manufacturers submitted by the successful Bidder, the list shall not be changed unless written approval of the change is authorized by the Owner, Construction Consultant, and Architect.
4. The failure to submit requested information on a timely basis may result in the determination that the Bidder is not responsible.
5. By submitting its bid, the Bidder agrees that the Owner's determination of responsiveness and responsibility shall be final and conclusive, and that if the Bidder, or any person at the Bidder's urging, directly or indirectly challenges such determination in any legal proceeding and such challenge is not successful, the Bidder will reimburse the Owner for all legal fees and expenses incurred by the Owner that are related to such challenge, including the cost of collection.
6. No Bidder may withdraw its bid within sixty (60) days after the date bids are opened.
7. The Owner further reserves the right to disqualify bids, before or after opening, upon evidence of collusion with intent to defraud or other illegal practices on the part of the Bidder.

K. EXECUTION OF CONTRACT

1. Notice of Intent to Award Contract. The successful bidder will be notified of the award of the contract and provided with three (3) copies of the Owner-Contractor Agreement ("Agreement") in the form included in the Project Manual. The Owner reserves the right to rescind any Notice of Award if the Owner determines the Notice of Award was issued in error.
2. The successful Bidder will sign and return the original forms to the Owner, or as otherwise directed, for execution by the Owner. The contract will be submitted to the Owner at its next regularly scheduled Board meeting for approval by the Owner. The successful Bidder will be provided with a fully executed copy of the Agreement for its records.

3. If the successful Bidder does not return the executed contracts to the Owner within five (5) business days of its receipt of the contracts from the Owner, the Owner reserves the right to reject the bid and award the contract to the next low responsible bidder.

L. SUBSTITUTIONS

1. Certain brands of material or apparatus are specified. These specified brands may be referred to in the Contract Documents as Standards. Each bid will be based on these brands. The use of another brand may be requested as provided herein.

2. No substitution for a specified brand ("Substitution") will be considered prior to receipt of bids unless written request for approval has been received by the Architect at least ten (10) days prior to the date for receipt of bids. Such requests shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed Substitution including drawings, performance and test data, and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts that incorporation of the proposed Substitution would require, shall be included. The burden of proof of the merit of the proposed Substitution is upon the Bidder proposing the Substitution. The Architect's decision of approval or disapproval of a proposed Substitution shall be final.

If the brand or product is acceptable, the Architect will approve it prior to bidding in an Addendum issued to all Bidders on record and the Substitution shall become a Standard.

3. In proposing a Substitution, the Bidder represents and warrants that each proposed Substitution will not result in any changes to the Project, including changes to the Work of other contractors, or any decrease in the performance of any equipment or systems to be installed in the Project and agrees to pay any additional costs incurred by the Owner as a result of a Substitution which is accepted.

4. Following the award of the Contract, there shall be no Substitutions, except pursuant to a Change Order. The Owner in its sole discretion may decline to consider a Substitution for a Change Order.

M. ALTERNATES

1. The Owner may request bids on alternates. If the Owner request bids on alternates, the Bidder should include the cost of the alternates requested on its Bid Form.

2. At the time of awarding the contract, the Owner will select or reject alternates as it determines is in its best interest. A Bidder's failure to include in its Bid Form the cost of an alternate selected by the Owner and applicable to the Bidder's work may render the bid non-responsive and be grounds for the rejection of the bid. Otherwise, the failure to include the cost of an alternate will not be deemed material.

3. The Bidder acknowledges that although there is an estimate for the cost of the Project, the market conditions may and frequently do result in the estimate being different from the sum of the bids received, either higher or lower. The Bidder understands that the Owner has included alternates, which may include deduct alternates as well as add alternates, to give it the flexibility in building the Project with the funds that are available. The Bidder further understands and acknowledges that use of add and deduct alternates is a long held customary practice in the construction industry in the State of Ohio. The Bidder also acknowledges that the Owner will not make a decision about what alternates on which to base the award of contracts until the bids are received, and the Owner can compare its available funds with the base bids and the cost or savings from selecting different alternates. The Bidder understands that the

award to the lowest responsible and responsive Bidder will be based on the lowest base bid plus selected alternates and may result in an award to a Bidder other than the Bidder that submitted the lowest base bid.

4. The Bidder agrees to hold the prices stated for alternates on the Bid Form for a period of 60 days after the bid opening. If following that 90-day period, during the progress of the Work, the Owner desires to reinstate any alternate not included in the Contract, the Owner reserves the right to reinstate the alternate at the price bid by the Contractor provided that such action is taken in sufficient time so as not to delay the progress of the work or cause the Contractor additional expense.

N. UNIT PRICES

1. Where unit prices are requested in the Bid Form for a Contract on which the Bidder submits a bid, the Bidder should quote a unit price. Unless otherwise expressly provided in the Contract Documents, such unit prices shall include all labor, materials and services necessary for the timely and proper installation of the item for which the unit prices are requested. The unit prices quoted in the bid shall be the basis for any Change Orders entered into under the Owner-Contractor Agreement, unless the Architect or Construction Consultant determines that the use of such unit prices will cause substantial inequity to either the Contractor or the Owner.

O. ADDENDA

1. Any explanation, interpretation, correction or modification of the Bid Documents will be issued in writing in the form of an Addendum, which shall be the only means considered binding; explanations, interpretations, etc., made by any other means shall NOT be legally binding. All Addenda shall become a part of the Contract Documents.

2. Contractors should submit questions to the Architect in advance, to allow sufficient time for the Architect to respond. All Addenda will be issued except as hereafter provided and mailed or otherwise furnished to persons who have obtained Contract Documents for the Project, at least forty-eight (48) hours prior to the published time for the opening of bids, excluding Saturdays, Sundays and legal holidays.

3. Copies of each Addendum will be sent only to the Contractors to whom Drawings and Specifications have been issued for refundable deposit. Receipt of Addenda shall be indicated by Bidders in the space provided on the Bid Form.

4. Each Bidder shall carefully read and review the Contract Documents and immediately bring to the attention of the Owner's Designated Representative any error, omission, inconsistency, or ambiguity therein.

5. If a Bidder fails to indicate receipt of all Addenda through the last Addenda issued by the Architect on its Bid Form, the bid of such Bidder will be deemed to be responsive only if:

- a. The bid received clearly indicates that the Bidder received the Addendum, such as where the Addendum added another item to be bid upon and the Bidder submitted a bid on that item; or
- b. The Addendum involves only a matter of form or is one which has either no effect or has merely a trivial or negligible effect on price, quantity, quality, or delivery of the item bid upon.

P. STATE SALES AND USE TAXES

1. The Owner is a political subdivision of the State of Ohio. Building materials that the successful Bidder purchases for incorporation into the Project will be exempt from state

sales and use taxes if the successful Bidder provides a properly completed sales tax exemption certificate, executed by the successful Bidder and the Owner, to the vendors or suppliers when the materials are acquired. The Owner will execute properly completed certificates on request. A copy of the Construction Tax Exempt Form to be used in connection with the Project is included with the Project Manual

Q. LIQUIDATED DAMAGES

1. Each successful Bidder shall commence Work on the Site on the date established in the Project Time Schedule for its Work. The Project Site will be available as identified by the phasing documents as prepared by the Owner's construction consultant enclosed.
2. Each successful Bidder shall have its work substantially completed (as Substantial Completion is defined in the Contract Documents) by the respective milestones and/or Dates for Substantial Completion set forth in the preliminary Project Time Schedule, as that preliminary Project Time Schedule is finalized by the Contractors and approved by the Owner and Architect based upon information received from the Contractors. For purposes of the Contract Documents applicable to the Contractor, the term "Substantial Completion" shall refer to the date of completion for the Contractor's portion of the Work, as established in the Project Time Schedule.

By submitting the Bid, the Bidder agrees that the periods for performing the Work are reasonable, and that the Bidder's Work can be substantially complete by its applicable date(s) for Substantial Completion.

3. If the successful Bidder does not have its Work on the Project substantially complete by the date for Substantial Completion for its portion of the Project as established in the Project Time Schedule, the successful Bidder will pay the Owner (and the Owner may set off from sums coming due the Successful Bidder) liquidated damages in the per diem amount set forth on the following table for each calendar day beyond the date of Substantial Completion as extended in accordance with the Contract Documents.

LIQUIDATED DAMAGES

<u>Contract Amount</u>	<u>Dollars per Day</u>
\$1.00 to \$50,000.00	\$150.00
\$50,000.01 to \$150,000.00	\$250.00
\$150,000.01 to \$500,000.00	\$500.00
\$500,000.01 to \$1,000,000.00	\$1,000.00

4. The Bidder acknowledges by submitting its bid and entering into a contract with the Owner that such amounts of liquidated damages represent a reasonable estimate of the actual damages that the Owner would incur if the work is not substantially complete by the foregoing dates. These liquidated damages are damages for loss of use of the Project, and the successful Bidder in addition to the liquidated damages will be obligated to indemnify and hold the Owner harmless from any claims, and if the Work on the Project is accelerated because of delay, for all costs related to the acceleration of the Work, as provided in the Contract Documents.

R. PROJECT SCHEDULE AND SCOPE OF WORK.

1. The Contractor shall be prepared to start work within (2) weeks after award of Contract. Award is expected **August 24, 2021**.
2. Substantial completion is expected by December 1st, 2021.

S. BID RESPONSIVENESS; OWNER'S RIGHT TO WAIVE DEFECTS AND IRREGULARITIES

1. The Bidder's bid shall be responsive to the Specifications for the Project in all material respects and shall contain no material irregularities or deviations from the Specifications that would affect the amount of the bid or otherwise give the Bidder a competitive advantage. The Owner reserves the right to reject any bid, in whole or in part, that it determines is not responsive.
2. The Owner reserves the right to waive any and all irregularities, informalities and technicalities in the bidding process.
3. By submitting its bid, the Bidder agrees that (i) the Owner's determination of whether a defect or irregularity affects the amount of the bid in any material respect or otherwise gives the Bidder a competitive advantage will be final and conclusive; and (ii) the Bidder will pay the Owner's attorney's and consultants' fees related to any challenge to the bid procedure or process, brought directly or indirectly by the Bidder and/or any of its affiliates, which is unsuccessful.

T. MODIFICATION AND WITHDRAWAL OF BIDS

1. Modification: A Bidder may modify its bid by written communication to the Owner addressed to the Director of Business Services, at the Owner's address at any time prior to the scheduled closing time for receipt of bids, provided such written communication is received by the Director of Business Services prior to the closing time. The written communication shall not reveal the bid price but should provide the addition or subtraction or other modification so that the final prices or terms will not be known until the sealed bid is opened.
2. Withdrawal Prior to Bid Closing: A Bidder may withdraw its bid at any time for any reason prior to the bid closing time established in the Notice to Bidders. The request to withdraw shall be made in writing and submitted to the Director of Business Services, at the Owner's address.
3. Withdrawal after Bid Closing: A Bidder may withdraw its bid after the bid closing time when all of the following apply:
 - a. the price bid was substantially lower than the other bids;
 - b. the reason for the bid being substantially lower was a clerical mistake, rather than a mistake in judgment, and was due to an unintentional and substantial error in arithmetic or an unintentional omission of a substantial quantity of work, labor, or material;
 - c. the bid was submitted in good faith;
 - d. the Bidder provides written notice to the Owner, to the attention of the Treasurer, within two (2) business days after the bid opening for which the right to withdraw is claimed.

U. EQUAL EMPLOYMENT OPPORTUNITY/NONDISCRIMINATION

1. Minority, female, and disadvantaged businesses will be afforded full opportunity to submit bids, and bidders will not be discriminated against on the grounds of race, color,

religion, sex, age, handicap, ancestry, or national origin in the consideration of an award. The successful Bidder(s) shall include a provision in any subcontract entered into for the Project that requires that each of its subcontractors not discriminate against any employee or applicant for employment on the basis of race, religion, color, sex, age, handicap, ancestry, or national origin in any actions that it takes. Such actions include, without limitation, employment, upgrading, demotion, transfer recruitment or recruiting advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeships.

2. The contract document to be executed by the successful Bidder contains nondiscrimination provisions as required by Ohio Revised Code Sections 153.59 and 153.60.

END OF INSTRUCTIONS TO BIDDERS

BID FORM

Project: MCS – Concrete Replacement
Maumee City Schools

Gateway Middle School
900 Gibbs Street
Maumee, Ohio 43537

Bids Due: August 17th, 2021, 1:00 EST

To: Paul Brotzki, Treasurer
Maumee City Schools
716 Askin Street
Maumee, Ohio 43537

Submitted By:

Bidder : _____

Address : _____

: _____

Telephone : _____

Fax : _____

E-mail : _____

The undersigned acknowledges having received and carefully reviewed the Contract Documents prepared by:

Thomas Porter Architects
8 N. St. Clair Street
Toledo, Ohio 43604-1028

The undersigned also acknowledges receipt and inclusion of the following addenda in our Bid:

ADDENDUM #

DATE

In submitting this Bid, the Bidder agrees to the following:

1. To hold their bid open for 60 days after receipt of bids.

2. To provide a form of bid guaranty as described in the Instructions to Bidders.
3. To enter into and execute a Contract, if awarded on the basis of this Bid, and to furnish a Bid Guaranty and Contract Bond in accordance with the project manual.
4. To submit Certificates of Insurance for the coverage specified.
5. To accomplish the Work in accordance with the Contract Documents.
6. To complete the Work covered by this Bid within dates specified in the project manual.

BASE BIDS

The Bidder agrees to execute the work under each of the following Base Bid areas indicated for the lump sum amount(s) given therein. (See Section 01010 – Summary of Work, for work included under the Base Bid)

ITEM 1.0 – GATEWAY MIDDLE SCHOOL AREA “MS1”

Provide cost to provide all labor, materials and equipment for all work identified as base bid on the contract drawings. Work includes selective sidewalk replacement.

All Labor and Materials, for the sum of \$_____

Sum in Words_____

ITEM 2.0 – GATEWAY MIDDLE SCHOOL AREA “MS2”

Provide cost to provide all labor, materials and equipment for all work identified as base bid on the contract drawings. Work includes sidewalk replacement.

All Labor and Materials, for the sum of \$_____

Sum in Words_____

ITEM 3.0 – GATEWAY MIDDLE SCHOOL AREA “MS3”

Provide cost to provide all labor, materials and equipment for all work identified as base bid on the contract drawings. Work includes stoop, steps, and sidewalk replacement as well as a new accessible ramp and railings. *Base bid item 3.0 to include the allowance indicated in Section 01019 Contract Consideration.*

All Labor and Materials, for the sum of \$_____

Sum in Words_____

COMBINED BID

COMBINED BID (Items 1.0 through 3.0)

Provide cost to provide all labor, materials and equipment for the proposed work identified in Items 1.0 through 3.0. Cost shall be less than or equal to the sum of Bid Items 1.0 through 3.0.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

ALTERNATES

ALTERNATE "MS1" – (ADD)

Provide cost to provide all labor, materials and equipment required to remove and replace an *entire* length of concrete sidewalk per the contract drawings *less the cost of Item 1.0*.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

ALTERNATE "MS4" – (ADD)

Provide cost to provide all labor, materials and equipment required to remove and replace approx. 8 SF of existing stone building cladding per the contract drawings.

All Labor and Materials, for the sum of \$ _____

Sum in Words _____

UNIT COSTS (refer to Section 01270 Unit Prices)

For changes in the project scope of work from what is indicated in the Contract Documents, the undersigned agrees that the unit prices as stated below will pertain throughout the contract period for work added to or deducted from the contract. Each unit price shall be net to the Owner for work in place and shall include all costs for labor, materials, supervision, permits, equipment, insurance, overhead and profit. To receive consideration, each bidder shall quote as part of proposal unit prices for appropriate items listed below. The Owner reserves the right prior to entering into an agreement to accept or reject any / or all unit prices.

Unit Price

- | | | |
|----|--|------------|
| A. | Furnish and install additional concrete pavement (4") and compacted stone base (4")
(See Specification Section 02750) | \$/SQ. FT. |
| | | |
| B. | Furnish and install additional concrete curb and compacted stone base as detailed
(See Specification Section 02750) | \$/LN. FT. |

BIDDERS CERTIFICATION

The Bidder hereby acknowledges that the following representations in this bid are material and not mere recitals:

1. The Bidder has read and understands the Contract Documents and agrees to comply with all requirements of the Contract Documents, regardless of whether the Bidder has actual knowledge of the requirements and regardless of any statement or omission made by the Bidder which might indicate a contrary intention.
2. The Bidder represents that the bid is based upon the Standards specified by the Contract Documents.
3. The Bidder has visited the Project site, become familiar with local conditions and has correlated personal observations with the requirements of the Contract Documents. The Bidder has no outstanding questions regarding the interpretation or clarification of the Contract Documents.
4. The Bidder understands that the award of separate contracts for the Project will require sequential, coordinated and interrelated operations, which may involve interference, disruption, hindrance or delay in the progress of the Bidder's Work. The Bidder agrees that the Contract price, as amended from time to time by Change Order, shall cover all amounts due from the Owner resulting from interference, disruption, hindrance or delay caused by or between Contractors or their agents and employees.
5. The Bidder agrees that any such interference, disruption, hindrance or delay is within the contemplation of the Bidder and the Owner and that the Contractor's sole remedy for such interference, disruption, hindrance or delay shall be an extension of time in accordance with the Contract Documents. This provision is intended to be, and shall be construed as, consistent with and not in conflict with, Section 4113.62, ORC, to the fullest extent permitted.
6. The Bidder and each person signing on behalf of the Bidder certifies, and in the case of a joint or combined bid, each party thereto certifies as to such party's entity, under penalty or perjury, that to the best of the undersigned's knowledge and belief: (a) the Base Bid, any Unit Prices and any Alternate Bid in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition as to any matter relating to such Base Bid, any Unit Prices and any Alternate bid in the bid have not been knowingly disclosed by the Bidder and will not knowingly be disclosed by the Bidder prior to the bid opening, directly or indirectly, to any other Bidder who would have any interest in the Base Bid, Unit Prices or Alternate bid; (c) no attempt has been made or will be made by the Bidder to induce any other individual, partnership or corporation to submit or not to submit a bid for the purpose of restricting competition.
7. The Bidder will execute the Contract Form with the School District Board, if a Contract is awarded on the basis of this bid, and if the Bidder does not execute the Contract Form for any reason, other than as authorized by law, the Bidder and the Bidder's Surety are liable to the School District Board as provided in Article 6 of the Instructions to Bidders.

8. The Bidder certifies that upon the execution of the Contract Form, the Contractor will make a good faith effort to ensure that all of the Contractor's employees, will work on the site of the Project, will not purchase, transfer, use or possess illegal drugs or alcohol or abuse prescription drugs in any way.
9. The Contractor acknowledges that all Work shall be completed within the time established in the Contract Documents, and that each applicable portion of the Work shall be completed upon the respective milestone completion dates, unless an extension of time is granted in accordance with the Contract Documents.
10. Bidder agrees to furnish any information requested by the School District Board to evaluate the responsibility of the Bidder.

Each bid shall contain the name of every person interested therein. If the Bidder is a corporation, partnership, sole proprietorship, or limited liability corporation, an officer, partner or principal of the Bidder, as applicable, shall print or type the legal name of the Bidder on the line provided and sign the Bid Form. If the Bidder is a joint venture, an officer, partner or principal, as applicable, of each member of the joint venture shall print or type the legal name of the applicable member on the line provided and sign the Bid Form.

BIDDER'S NAME (PRINT)

Authorized Signature: _____

Title: _____

Company Name: _____

Mailing Address:

Telephone Number: (____) _____

Facsimile Number: (____) _____

Where Incorporated: _____

Type of Business (circle one):

Corporation Partnership

Sole Proprietorship

Limited Liability Corporation

Federal Tax ID Number: _____

Contact Person for
Contract processing:

End of Section

SUBSTITUTION REQUEST FORM

SUBMITTED BY:

FIRM	DATE SUBMITTED
ADDRESS	PHONE NO.
	FAX NO.
CONTACT PERSON	

SPECIFIED PRODUCT/MATERIAL/SYSTEM

PRODUCT NAME	SPECIFICATION SECTION	PARAGRAPH NUMBER	DRAWING NUMBER	DETAIL OR SECTION NUMBER
--------------	-----------------------	------------------	----------------	--------------------------

PROPOSED SUBSTITUTION (insert names and circle Yes or No as relates to product data and samples)

PRODUCT/MATERIAL/SYSTEM		MANUFACTURER	
Yes	We have included product data with this request.	Yes	We have included material samples with this request
No	We have not included product data with this request	No	We have not included material samples with this request

STATEMENT OF COMPLIANCE

WE hereby certify

1. We have investigated the proposed substitute and determined that it meets or exceeds, in all respects, the specified product.
2. The same warranty will be provided for the proposed substitution as for the specified product.
3. Installation will be coordinated and other changes made as necessary to ensure that work is complete in all respects, including costs both to others and us.
4. We waive claims for additional costs, which may subsequently become apparent due to use of the proposed substitute.
5. The proposed substitute is compatible with other materials.
6. The proposed substitute can be provided within the Contract Time and will not cause Work delay.
7. The proposed substitute complies with applicable requirements of governing authorities.
8. The proposed substitute will not affect indicated dimensions on drawings.
9. The proposed substitute will not affect other materials and systems.
10. The proposed substitute will not affect work of other trades.
11. The proposed substitute will not require redesign work by the Architect.
12. The person signing this form is legally authorized representative of our firm.

EXCEPTIONS

EXCEPTION STATEMENT	
	We do not take exception to any item listed in the above Compliance Statement.
	We have attached documentation indicating items to which we take exception and why.

(Type Name)

(Signature)

(Date)

ACCEPTED	Accepted by	Date	REJECTED	Rejected by	Date
----------	-------------	------	----------	-------------	------

BID GUARANTY AND CONTRACT BOND
(O.R.C. § 153.571)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned _____
_____ ("Contractor") as principal and
_____ as surety are hereby held
and firmly bound unto the Board of Education of Maumee City Schools, Lucas County, Ohio, as
obligee in the penal sum of the dollar amount of the bid submitted by the principal to the
obligee on _____, 2021, to undertake _____ for the Summer
Paving Projects, Maumee City Schools, Maumee, Ohio ("Project"). The penal sum referred to
herein shall be the dollar amount of the principal's bid to the obligee, incorporating any additive
or deductive Alternates made by the principal on the date referred to above to the obligee,
which are accepted by the obligee. In no case shall the penal sum exceed the amount of _____
_____. Dollars (\$ _____). (If the foregoing blank is not filled in, the penal sum will be the full amount of
the principal's bid, including add Alternates. Alternatively, if the blank is filled in the amount
stated must not be less than the full amount of the bid including add Alternates, in dollars and
cents. A percentage is not acceptable.) For the payment of the penal sum well and truly to be
made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators,
successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas the above named principal
has submitted a bid for work on the Project.

Now, therefore, if the obligee accepts the bid of the principal and the principal fails to
enter into a proper contract in accordance with the bid, plans, details, specifications, and bills
of material; and in the event the principal pays to the obligee the difference not to exceed ten
percent (10%) of the penalty hereof between the amount specified in the bid and such larger
amount for which the obligee may in good faith contract with the next lowest bidder to perform
the work covered by the bid; or in the event the obligee does not award the contract to the
next lowest bidder and resubmits the project for bidding, the principal pays to the obligee the
difference not to exceed ten percent (10%) of the penalty hereof between the amount
specified in the bid, or the costs, in connection with the resubmission, of printing new contract
documents, required advertising, and printing and mailing notices to prospective bidders,
whichever is less, then this obligation shall be null and void, otherwise to remain in full force and
effect; if the obligee accepts the bid of the principal and the principal within ten (10) days after
the awarding of the contract enters into a proper contract in accordance with the bid, plans,
details, specifications, and bills of material, which said contract is made a part of this bond the
same as though set forth herein.

Now also, if the said principal shall well and faithfully do and perform the things agreed
by said principal to be done and performed according to the terms of said contract; and shall
pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and
materials furnished in the carrying forward, performing, or completing of said contract; we
agreeing and assenting that this undertaking shall be for the benefit of any materialman or
laborer having a just claim, as well as for the obligee herein; then this obligation shall be void;
otherwise the same shall remain in full force and effect; and surety shall indemnify the obligee
against all damage suffered by failure of the principal to perform the contract according to its

provisions and in accordance with the plans, details, specifications, and bills of material therefore and to pay all lawful claims of subcontractors, materialmen, and laborers for labor performed or material furnished in carrying forward, performing, or completing the contract and surety further agrees and assents that this undertaking is for the benefit of any subcontractor, materialman, or laborer having a just claim, as well as for the obligee; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this ____ day of _____, 2021.

(PRINCIPAL) (Seal)

By: _____

Printed Name & Title: _____

(SURETY) (Seal)

By: _____

Printed Name & Title: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

CONTRACT BOND

(O.R.C. § 153.57)

KNOW ALL PERSONS BY THESE PRESENTS, that we, the undersigned ("Contractor") as principal and _____ as sureties, are hereby held and firmly bound unto the Board of Education of the Maumee City Schools, Lucas County, Ohio, (together referred to as the "Board") as obligee, in the penal sum of _____

_____ Dollars (\$_____), for the payment of which well and truly to be made, we hereby jointly and severally bind ourselves, our heirs, executors, administrators, successors, and assigns.

THE CONDITION OF THE ABOVE OBLIGATION IS SUCH that whereas, the above-named principal did on the ____ day of _____, 2021, enter into a contract with the Board for the Summer Paving Projects, Maumee City Schools, Maumee, Ohio ("Project"), which said contract is made a part of this bond the same as though set forth herein:

Now, if the said Contractor shall well and faithfully do and perform the things agreed by the Contractor to be done and performed according to the terms of said contract; and shall pay all lawful claims of subcontractors, materialmen, and laborers, for labor performed and materials furnished in the carrying forward, performing, or completing of said contract; we agreeing and assenting that this undertaking shall be for the benefit of any materialman or laborer having a just claim, as well as for the obligee herein; then this obligation shall be void; otherwise the same shall remain in full force and effect; it being expressly understood and agreed that the liability of the surety for any and all claims hereunder shall in no event exceed the penal amount of this obligation as herein stated.

The said surety hereby stipulates and agrees that no modifications, omissions, or additions in or to the terms of the said contract or in or to the plans or specifications therefore shall in any wise affect the obligations of said surety on its bond, and it does hereby waive notice of any such modifications, omissions or additions to the terms of the contract or to the work or to the specifications.

Signed and sealed this ____ day of _____, 2021.

(PRINCIPAL) (Seal)

By: _____

Printed Name & Title: _____

(SURETY) (Seal)

By: _____

Printed Name & Title: _____

NAME OF SURETY'S AGENT

Surety's Agent's Address: _____

Surety's Agent's Telephone Number: _____

Surety's Agent's Fax Number: _____

CONTRACTOR'S PERSONAL PROPERTY TAX AFFIDAVIT
(O.R.C. § 5719.042)

State of Ohio

County of _____, ss:

_____, being first duly sworn, deposes and says that he is the
(Name)

_____ of _____ with offices located at
(Title) (Contractor)

_____, and as it's duly
(Address of Contractor)

authorized representative, states that effective this ____ day of _____, 2021,

(Name of Contractor)

() is charged with delinquent personal property taxes on the general list of personal property as set forth below:

<u>County</u>	<u>Amount</u> (include total amount penalties and interest thereon)
Lucas County	\$ _____
_____ County	\$ _____
_____ County	\$ _____

() is not charged with delinquent personal property taxes on the general list of personal property in any Ohio county.

(Affiant)

Sworn to and subscribed this ____ day of _____, 2021.

(Notary Public)

My commission expires



**STATE OF OHIO
DEPARTMENT OF TAXATION
CONSTRUCTION CONTRACT EXEMPTION CERTIFICATE**

Identification of Contract:

Contractee's (Owner's) name: The Board of Education of Maumee City Schools, Maumee, Ohio

Exact location of job/project: Gateway Middle School, 900 Gibbs Street, Maumee, Ohio 43537
Wayne Trial Elementary, 1147 7th Street, Maumee, Ohio 43537
Maumee High School, 1147 Saco Street, Maumee, Ohio 43537

Name of job/project as it

appears on contract documentation: MCS Concrete Replacement – Maumee City Schools

The undersigned hereby certifies that the tangible personal property purchased under this exemption certificate was purchased for incorporation into:

- ☐ Real property under a construction contract with the United States government, its agencies, the State of Ohio or an Ohio political subdivision.
- ☐ Real property which is owned, or will be accepted for ownership at the time of completion, by the United States government, its agencies, the State of Ohio or an Ohio political subdivision.
- ☐ A house of public worship or religious education.
- ☐ A building used exclusively for charitable purposes by a nonprofit organization operated exclusively for charitable purposes as defined in section 5739.02(B)(12) of the Revised Code.
- ☐ The original construction of a sports facility under section 307.696 of the Revised Code.
- ☐ A hospital facility entitled to exemption under section 140.08 of the Revised Code.

The original of this certificate must be signed by the owner/contractee and/or government official and must be retained by the prime contractor. Copies must be maintained by the owner/contractee and all subcontractors. When copies are issued to suppliers when purchasing materials, each copy must be signed by the contractor or subcontractor making the purchase.

Prime Contractor

Name _____
Signed by _____
Title _____
Address _____
City, State, Zip _____
Date _____

Subcontractor

Name _____
Signed by _____
Title _____
Address _____
City, State, Zip _____
Date _____

Owner/Contractee

Name Board of Education, Maumee City Schools
Signed by _____
Title Paul Brotzki, Treasurer
Address 716 Askin Street
City, State, Zip Maumee, Ohio 43537
Date _____

Political Subdivision

Name _____
Signed by _____
Title _____
Address _____
City, State, Zip _____
Date _____

GENERAL CONDITIONS/SUPPLEMENTARY CONDITIONS

GENERAL CONDITIONS

The standard form of "General Conditions of the Contract for Construction", of the American Institute of Architects, A201 - 2017 edition, is hereby incorporated into and becomes a part of the Specifications for this work.

SUPPLEMENTARY GENERAL CONDITIONS

The following "Supplementary General Conditions" are subject to all requirements of the General Conditions of the Contract, except as stated above, and modify them as follows.

The following items refer to the General Conditions by Article and Sub-Article numbers:

ARTICLE 2: OWNER

2.2.2 Delete the first part of the subparagraph as follows "Except for permits....under the contract documents"

2.2.2.1 The Owner shall secure the required general building permit required by the State of Ohio.

Add the following paragraph 2.2.6 to 2.2.6.2.

2.2.6 Notice of Commencement

2.2.6.1 Pursuant to Section 1311.252, ORC, the Owner shall prepare a Notice of Commencement in affidavit from identifying the name and address of the public authority, the Project number, the name, address and trade of all Contractors, the date of execution of the Contracts, and the name and address of the Surety for each Contractor, in addition to the name and address of the Owner's representative upon whom a Claim Affidavit may be served.

2.2.6.2 The Notice of Commencement shall be made available upon request. The unavailability of a Notice of Commencement or incorrect information in the Notice of Commencement does not adversely affect the right of claimants, pursuant to Section 1311.252(C), ORC.

ARTICLE 3: CONTRACTOR

Add the following paragraphs 3.1.4 to 3.1.4.4, 3.1.5 to 3.1.5.1, 3.1.6 to 3.1.6.2 and 3.1.7 to 3.1.7.2.

3.1.4 Nondiscrimination

3.1.4.1 During the performance of the Contract, the Contractor agrees that in the hiring of employees for the performance of Work, including without limitation Work to be performed by a Subcontractor, no Contractor or Subcontractor, and no person acting on behalf of the Contractor or Subcontractor, shall, by reason of race, religion, national origin, age, sex, disability, Vietnam era Veteran status, or color, discriminate against any citizen in the employment of labor or workers who are qualified and available to perform the Work to which the employment relates.

3.1.4.2 The Contractor further agrees that no Contractor or Subcontractor, and no person acting on behalf of the Contractor or Subcontractor, shall, in any manner, discriminate against or intimidate any employee hired for the performance of Work on account of race, religion, national origin, age, sex, disability, Vietnam era Veteran status or color.

3.1.4.3 The Contractor agrees that the Contractor will fully cooperate with the State Equal Opportunity Coordinator, with any other official or agency of the State or federal government which seeks to eliminate unlawful employment discrimination, and with all other State and federal efforts to assure equal employment practices under the Contract.

3.1.4.4 In the event of the Contractor's noncompliance with the nondiscrimination clauses, the Contract may be terminated or suspended in whole or in part.

3.1.5 Affirmative Action

3.1.5.1 Each Contractor must fully comply with the State's Equal Employment in the Construction Industry rules set forth in Chapters 123:2-3 through 123:2-9, OAC.

3.1.6 Women in Construction

3.1.6.1 The utilization goal for women workers in the performance of the Work in each trade in all geographical areas is 6.9 percent of the work hours.

3.1.6.2 The Contractor's good faith effort to comply with this goal shall be reviewed and determined according to Chapters 123:2-1 through

123:2-9, OAC.

- 3.6.1 Delete subparagraph 3.6.1 and substitute the following:
"The Project is tax exempt."
- 3.7.1 Delete the requirement that the contractor shall secure and pay for the building and plumbing permits. The Owner will secure and pay for these two permits. The Contractor will be responsible for all other permits.

ARTICLE 9: PAYMENTS AND COMPLETION

Add the following subparagraph 9.4.3.

- 9.4.3 Certified payroll reports for the period of time indicated shall be attached to one (1) copy of every Certificate for Payment.
- 9.6.1 Add the following subparagraphs to 9.6.1.
 - 9.6.1.1 Payment of an approved Certificate for Payment shall be made within 30 days from the date of approval by the Owner.
 - 9.6.1.2 Payments due and not paid to the Contractor within such 30 day period shall bear interest from the date payment is due under the Contract Documents at the average of the prime rate established at the commercial banks in the city of over 100,000 population that is nearest to the Project, pursuant to Section 153.14, ORC.

Add the following paragraph 9.11 to 9.11.3.

- 9.11 Retainage
 - 9.11.1 Partial payments to this contractor for material and labor performed under the contract shall be made at the rate of 92 percent of the amount invoiced until The Certificate for Payment which shows the total contract completion at 50 percent or greater, pursuant to Section 153.13, ORC.
 - 9.11.2 After the contract is 50 percent complete, as evidenced by payments in the amount of at least 50 percent of the contract price to the contractor. No additional funds shall be retained from payments for material and labor.
 - 9.11.3 All funds retained for the faithful performance of the work shall be deposited in an escrow account with a bank in the state in accordance with the terms and conditions provided in an escrow agreement executed by the Contractor, the Owner, and the applicable bank, pursuant to Section 153.63, ORC.

ARTICLE 11: INSURANCE AND BONDS

Add the following Clause 11.1.2.1 to 11.1.2:

11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits or greater if required by law:

1. Worker's Compensation:
 - a. State Statutory
 - b. Applicable Federal
(e.g., Longshoremen's) Statutory
 - c. Employer's Liability \$250,000 per Accident
\$500,000 Disease, Policy Limit
\$250,000 Disease, Each
Employee
2. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage);
 - a. Bodily Injury:
\$250,000 Each Occurrence
\$500,000 Aggregate
 - b. Property Damage:
\$250,000 Each Occurrence
\$500,000 Aggregate
 - c. Products and Completed Operations to be maintained for 1 year
after final payment:
\$500,000 Aggregate
 - d. Property Damage Liability Insurance shall provide X, C, and U
coverage.
 - e. Broad Form Property Damage Coverage shall include Complete
Operations.
3. Contractual Liability:

- a. Bodily Injury:
\$250,000
\$500,000
Each Occurrence
Aggregate
- 4. Personal Injury, with Employment Exclusion deleted:
\$500,000
Aggregate
- 5. Business Auto Liability (including owned, non-owned and hired vehicles):
 - a. Bodily Injury
\$250,000
\$500,000
Each Person
Each Occurrence
 - b. Property Damage:
\$250,000
Each Occurrence

Delete paragraph 11.3 Prospect Management Protective Liability Insurance and subparagraphs 11.3.1 to 11.3.3.

Add the following subparagraph 11.5.1.1

11.5.1.1 The Contractor shall furnish a performance bond for the entire project.

ARTICLE 13: MISCELLANEOUS PROVISIONS

Add the following paragraphs 13.8 to 13.8.4, 13.9 to 13.9.3 and 13.10 to 13.10.2.4.

13.8 Subcontractors and Material Suppliers

13.8.1 Within ten (10) days of the Notice to Proceed, the Contractor shall list the Contractor's proposed Subcontractors and Material Suppliers and submit such list to the Architect.

13.8.2 The Contractor shall not replace any Subcontractor or Material Supplier after execution of the Contract without written approval of the Owner.

13.8.3 The Contractor shall be fully responsible for all acts and omissions of the Contractor's Subcontractors and Material Suppliers and shall be responsible for scheduling and coordinating the Work of the Contractor's Subcontractors and Material Suppliers.

13.8.3.1 Delays attributable to the contractor's Subcontractors or Material Suppliers shall be deemed to be delays within the control of the Contractor.

13.8.3.2 The Contractor shall require that each of the

Contractor's Subcontractors have a competent supervisor at the Project whenever Work is being performed by the Subcontractor.

13.8.3.3. The Contractor agrees to bind the Contractor's Subcontractor and Material Supplier to the terms of the Contract Documents, so far as applicable to the Work of such Subcontractor or Material Supplier.

13.8.4 The Contractor shall require each Subcontractor and Material Supplier to fully warrant and guarantee, for the benefit of the Owner, the effectiveness, fitness for the purpose intended, quality and merchantability of any Work performed or item provided or installed by such Subcontractor or Material Supplier.

13.9 Prompt Payment

13.9.1 Pursuant to Section 4113.61(A)(1), ORC, if a subcontractor or Material Supplier requests payment in time to allow the Contractor to include the request in the Contractor's Certificate for Payment, the Contractor shall pay within ten (10) days after the receipt of payment from the Owner.

13.9.1.1 To a Subcontractor an amount equal to percent of completion allowed by the Owner for the Subcontractor's Work.

13.9.1.2 To a Material Supplier an amount equal to all or a portion of the Material Supplier's request for materials furnished.

13.9.2 The Contractor may reduce the amount to be paid to a Subcontractor or Material Supplier pursuant to paragraph 9.11 by the amount of any retainage withheld from the Contractor and may withhold amounts necessary to resolve disputed liens or claims involving the Work of the Subcontractor or Material Supplier.

13.9.3 If the Contractor fails to comply with the provision of paragraph 9.11, the Contractor shall pay to the applicable Subcontractor or Material Supplier 18 percent interest on any unpaid amount beginning on the 11th day after receipt of payment from the Owner.

End of Section

SECTION 01010
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.
- B. This section includes:
 - 2. Outline Scope of Work
 - 3. Contractor's use of site and premises
 - 4. Work sequence

1.2 BID PACKAGE SUMMARY

- A. This section includes a brief description of the proposed work. It is issued as a guide to aid the bidders in understanding of the scope of work, but shall not be considered as being all inclusive or limited to the scope of work described in the contract documents. All bidders shall base bids on Scope of Work identified in the project drawings and project manual.

1. Base Bid Item 1.0 – Gateway Middle School Area “MS1”

- A. Provide cost to provide all labor, materials and equipment required to perform work indicated as base bid.
- B. Remove selective sections of existing concrete sidewalk from site as indicated and replace. Existing aggregate base shall be salvaged.
- C. Provide, install, and compact new aggregate base as required to comply with the specified base thickness.
- D. Provide top soil, grading, seeding, fertilization, etc for yard areas disturbed by the work.
- E. Provide/maintain positive drainage in all areas of work.

2. Base Bid Item 2.0 – Gateway Middle School Area “MS2”

- A. Provide cost to provide all labor, materials and equipment required to perform work indicated as base bid.
- B. Remove (2) continuous sections of existing concrete sidewalk from site as indicated and replace. Existing aggregate base shall be salvaged.
- C. Provide, install, and compact new aggregate base as required to comply with the specified base thickness.
- D. Provide top soil, grading, seeding, fertilization, etc for yard areas disturbed by the work.

E. Provide/maintain positive drainage in all areas of work.

3. Base Bid Item 3.0 – Gateway Middle School Area “MS3”

- A. Provide cost to provide all labor, materials and equipment required to perform work indicated as base bid.
- B. Remove small sections of existing concrete sidewalks from site as indicated and replace. Existing aggregate base shall be salvaged.
- C. Remove existing concrete stoops at doors #4 and #5 and replace as indicated.
- D. Remove existing concrete steps, handrails, and landing up to existing building as indicated. Perform concrete saw cutting as indicated and required. Replace concrete steps and provide new accessible ramp and handrails as indicated.
- E. Provide, install, and compact new aggregate base as required to comply with the specified base thicknesses.
- F. Provide top soil, grading, seeding, fertilization, etc for yard areas disturbed by the work.
- G. Provide/maintain positive drainage in all areas of work.

4. Alternate “MS1”

- A. Provide cost to provide all labor, materials and equipment required to perform work indicated as alternate, less the cost of the base bid for Area “MS1.”
- B. Remove entire section of existing concrete sidewalk from site as indicated and replace. Existing aggregate base shall be salvaged.
- C. Provide, install, and compact new aggregate base as required to comply with the specified base thickness.
- D. Provide top soil, grading, seeding, fertilization, etc for yard areas disturbed by the work.
- E. Provide/maintain positive drainage in all areas of work.

5. Alternate “MS4”

- A. Provide cost to provide all labor, materials and equipment required to perform work indicated as alternate.
- B. Remove existing deteriorated stone cladding/veneer from the building (approx. 8 SF) and replace. Provide material samples to match existing conditions. Cladding replacement shall blend with adjacent like materials.

6. Total Project Budget: \$115,000

A. Base Combined Bid:	\$100,00
B. Alternate "MS1":	\$14,000
C. Alternate "MS4":	\$1,000

1.3 CONTRACTOR USE OF SITES AND PREMISES

- A. Contractor shall coordinate work with Owner.
- B. Contractor shall limit use of sites to the project areas indicated on drawings.
- C. Contractor shall provide Owner access to buildings as required for school district to function.
- D. Time restrictions for performing exterior work shall conform to the City of Maumee requirements.

1.4 WORK SEQUENCES

- A. Construction work shall accommodate Owner's occupancy requirements. During the construction period coordinate construction schedule and operation with Owner.

1.5 OCCUPANCY REQUIREMENTS

- A. Contractor shall cooperate with Owner to minimize conflict and to facilitate Owner's operations.
- B. Schedule the work to accommodate this requirement.
- C. Contractor shall note that summer school sessions and other activities will be taking place at the sites.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01019
CONTRACT CONSIDERATIONS

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Contingency allowance.
- B. Schedule of Values.
- C. Application for Payment.
- D. Change procedures.

1.2 RELATED SECTIONS

- A. All sections.

1.3 CONTINGENCY ALLOWANCE

- A. Include in the project bids, the following project contingencies for use upon Owner's instruction:

Overall Construction Contingency: \$10,000
(Include the overall construction contingency in Base Bid Item 3.0)

- B. Contractor's costs for products, delivery, installation, labor, insurance, payroll, taxes, bonding, equipment rental, overhead and profit will be included in Change Orders authorizing expenditure of funds from this Allowance.
- C. Funds will be drawn from Contingency Allowance only by Change Order.
- D. At closeout of Contract, funds remaining in Contingency Allowance will be credited to Owner by Change Order.

1.4 SCHEDULE OF VALUES

- A. Submit typed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet.
- B. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.
- C. Format: Utilize the Table of Contents of this Project Manual. Identify each

line item with number and title of the major specification Section. Identify site mobilization, bonds and insurance, and other pertinent information.

- D. Include in each line item, the amount of Allowances specified in this Section. For unit cost Allowances, identify quantities taken from Contract Documents multiplied by the unit cost to achieve the total for the item.
- E. Include separately from each line item, a directly proportional amount of Contractor's overhead and profit.
- F. Revise schedule to list approved Change Orders, with each Application For Payment.

1.5 APPLICATIONS FOR PAYMENT

- A. Submit three copies of each application on AIA Form G702 - Application and Certificate for Payment.
- B. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
- C. Payment Period: Monthly.
- D. Waiver of Lien: Include with each Application for Payment except the first Waiver of Lien for payments associated with previous work.

1.6 CHANGE PROCEDURES

- A. The Architect/Engineer will advise of minor changes in the Work not involving an adjustment to Contract Sum/Price or Contract Time as authorized by AIA A201, by issuing supplemental instructions on AIA Form G710.
- B. The Architect/Engineer may issue a Proposal Request or which includes a detailed description of a proposed change with supplementary or revised Drawings and specifications. Contractor will prepare and submit an estimate with 15 days and will include a revised project schedule.
- C. The Contractor may propose a change by submitting request for change to the Architect/Engineer, describing the proposed change and its full effect on the Work. Include a statement describing the reason for the change, and the effect on the Contract Sum/Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01600.

- D. Stipulated Sum/Price Change Order: Based on Proposal Request or Bulletin and Contractor's fixed maximum price quotation or Contractor's request for a Change Order as approved by Architect/Engineer.
- E. Time and Material Change Order: Submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract. Architect/Engineer will determine the change allowable in Contract Sum/Price and Contract Time as provided in the Contract Documents.
- F. Maintain detailed records of work done on Time and Material basis. Provide full information required for evaluation of proposed changes, and to substantiate costs for changes in the Work.
- G. Change Order Forms: AIA G701/AIA G701/CM Change Order.
- E. Execution of Change Orders: Architect/Engineer will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

2. PART 2 PRODUCTS

Not Used

3. PART 3 EXECUTION

Not Used

END OF SECTION

SECTION 01027
APPLICATIONS FOR PAYMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements governing each prime contractor's Applications for Payment.
 - 1. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule, Submittal Schedule, and List of Subcontracts.
- B. Related Sections: The following Sections contain requirements that relate to this Section.
 - 1. Schedules: The Contractor's Construction Schedule and Submittal Schedule are specified in Division 1 Section "Submittals."

1.3 SCHEDULE OF VALUES

- A. Coordination: Prime Contractor for the demolition contract shall coordinate preparation of its Schedule of Values for the Work with preparation of the Project Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative schedules and forms, including:
 - a. Contractor's Construction Schedule.
 - b. Application for Payment forms, including Continuation Sheets.
 - c. List of subcontractors.
 - d. List of principal suppliers and fabricators.
 - 2. Submit the Schedule of Values to the Architect at the earliest possible date but no later than 7 days before the date scheduled for submittal of the initial Applications for Payment.

- B. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of the Architect.
 - c. Contractor's name and address.
 - d. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Dollar value.
 - 1) Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 3. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Break principal subcontract amounts down into several line items.
 4. Round amounts to nearest whole dollar; the total shall equal the Contract Sum.
 5. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include requirements for insurance and bonded warehousing, if required.
 6. Provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 7. Margins of Cost: Show line items for indirect costs and margins on actual costs only when such items are listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete. Include the total cost and proportionate share of general overhead and profit margin for each item.

- a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at the Contractor's option.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
 1. The initial Application for Payment, the Application for Payment at time of Substantial Completion, and the final Application for Payment involve additional requirements.
- B. Payment-Application Times: The date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days prior to the date for each progress payment.
- C. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 as the form for Applications for Payment.
- D. Application Preparation: Complete every entry on the form. Include notarization and execution by a person authorized to sign legal documents on behalf of the Contractor. The Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and the Contractor's Construction Schedule. Use updated schedules if revisions were made.
- E. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to the Architect by a method ensuring receipt within 24 hours. One copy shall be complete, including waivers of lien and similar attachments, when required.
 1. Transmit each copy with a transmittal form listing attachments and recording appropriate information related to the application, in a manner acceptable to the Architect.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics liens from subcontractors, sub-subcontractors and suppliers for the construction period covered by the previous application.
 1. Submit partial waivers on each item for the amount requested, prior to deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.

3. The Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, and executed in a manner, acceptable to the Owner.
- G. Initial Application for Payment: Administrative actions and submittals, that must precede or coincide with submittal of the first Application for Payment, include the following:
1. List of subcontractors.
 2. List of principal suppliers.
 3. Schedule of Values.
 4. Contractor's Construction Schedule.
 5. Schedule of principal products.
 6. Copies of authorizations and licenses from governing authorities for performance of the Work.
 7. Initial progress report.
 8. Report of preconstruction meeting.
 9. Certificates of insurance and insurance policies.
 10. Performance and payment bonds.
 11. Data needed to acquire the Owner's insurance.
- H. Application for Payment at Substantial Completion: Following issuance of the Certificate of Substantial Completion, submit an Application for Payment.
1. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
 2. Administrative actions and submittals that shall precede or coincide with this application include:
 - a. Occupancy permits and similar approvals.
 - b. Warranties (guarantees) and maintenance agreements.
 - c. Test records.
 - d. Maintenance instructions.
 - e. Final site cleaning.
 - f. Application for reduction of retainage and consent of surety.
 - g. List of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- I. Final Payment Application: Administrative actions and submittals that must precede or coincide with submittal of the final Application for Payment include the following:
1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Ensure that unsettled claims will be settled.

4. Ensure that incomplete Work is not accepted and will be completed without undue delay.
5. Transmittal of required Project construction records to the Owner.
6. Proof that taxes, fees, and similar obligations were paid.
7. Removal of temporary facilities and services.
8. Removal of surplus materials, rubbish, and similar elements.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01030
ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing Alternates.

1.3 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 either 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.

1.4 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, related coordination, 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 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.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

Reference 01010 Summary of Work and contract drawings for schedule of alternates.

END OF SECTION

SECTION 01035
MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing contract modifications.
 - 1. Prime Contract: Provisions of this Section apply to the work of prime contractor.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Contract Considerations" for procedural requirements governing the handling and processing of allowances.
 - 2. Division 1 Section "Submittals" for requirements for the Contractor's Construction Schedule.
 - 3. Division 1 Section "Applications for Payment" for administrative procedures governing Applications for Payment.

1.3 MINOR CHANGES IN THE WORK

- A. The Architect/Engineer will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or Contract Time, on either AIA Form G710, Architect/Engineer's Supplemental Instructions or as part of an RFI (Request for Information) response form.

1.4 CHANGE ORDER PROPOSAL REQUESTS

- A. The Architect/Engineer will issue a detailed description of proposed changes in the Work that will require adjustment to the Contract Sum or Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal requests issued by the Architect/Engineer are for information only. Do not consider them as an instruction either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days of receipt of a proposal request, submit an estimate of cost necessary to execute the change to the Architect/Engineer for the Owner's review.

- a. Include a list of quantities of products required and unit costs, with the total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.
- b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
- c. Include a statement indicating the effect the proposed change in the Work will have on the Contract Time.

1.5 CHANGE ORDER PRICING GUIDELINES

- A. For each change, the Contractor shall furnish a detailed, written Proposal itemized according to these Pricing Guidelines. Any Subcontractor or Material Supplier pricing shall also be itemized according to these Pricing Guidelines. In order to expedite the review and approval process, all Proposals shall be prepared in the categories and in the order listed below. These Pricing Guidelines are intended to establish the maximum amount which the Owner will pay for any Change Order, including without limitation all amounts for interference, delay, hindrance or disruption of the Work. A Change Order may provide that the Owner may pay less than the amount established by these Pricing Guidelines if an equitable amount is negotiated between the Construction Manager and the Contractor.
- B. LABOR: All field labor shall be priced at the current base rate being paid by the Contractor for such labor on the Project, or if such labor has not been previously employed on the Project, the base rate currently being paid by the Contractor on projects in the same locality, excluding fringe benefits. The payroll is to be based on straight time only and is to include number of hours and rate of pay for each classification of worker. If overtime is approved, list only the straight time portion in this item; overhead and profit will not be permitted on the cost of any premium time costs or shift work premiums.
- C. FRINGES: All established payroll taxes, assessments and fringe benefits on the labor in Paragraph 1.5.B. This may include, without limitation, FICA, Federal and State Unemployment, Health and Welfare, Pension Funds, Workers' Compensation and Apprentice Fund. Each of the fringes is to be a separate line item.
- D. EQUIPMENT RENTALS: All charges for certain non-owned heavy or specialized equipment at up to 100 percent of the documented rental cost. No rental charges will be allowed for hand tools, minor equipment, simple scaffolds, etc. Downtime due to repairs, maintenance and weather delays will not be allowed.

- E. OWNED EQUIPMENT: All charges for certain owned, heavy or specialized equipment at up to 100 percent of the cost listed by the Associated Equipment Dealers Blue Book. No recovery will be allowed for hand tools, minor equipment, simple scaffolds, etc. The longest period of time that the equipment is to be required for the Work will be the basis for the pricing. Downtime due to repairs, maintenance and weather delays will not be allowed.
- F. TRUCKING: A reasonable delivery charge or per-mile trucking charge for delivery of required materials or equipment. Charges for use of a pick-up truck will not be allowed.
- G. OVERHEAD: Overhead on items in Paragraph 1.5.B, C., D., E., and F., up to 10 percent, which shall include all costs required to schedule the work and coordinate with the Contractors.
 - 1. Overhead includes, without limitation, telephone, telephone charges, facsimile, telegrams, postage, photos, photocopying, hand tools, simple scaffolds (one level high), tool breakage, tool repairs, tool replacement, tool blades, tool bits, home office estimating and expediting, home office clerical and accounting support, home office labor (management, supervision, engineering*), legal services, travel and parking expenses.
 - 2. *An exception from Paragraph 1.5.G.1., is allowed for shop or engineering labor for steel fabricators, sheet metal fabricators and sprinkler system fabricators. Recovery for such matters will be allowed under Paragraph 1.5.B. and C.
- H. MATERIALS
 - 1. All materials purchased by the Contractor and incorporated into the changed Work, showing costs, quantities, or Unit Prices of all items, as appropriate. Reimbursement of material costs shall only be allowed in the amount of the Contractor's actual cost, including any and all discounts, rebates or related credits.
 - 2. One-third (33 percent) of the cost of reusable materials for each use, such as formwork lumber, shoring or temporary enclosures.
- I. PROFIT: Profit on items in Paragraphs 1.5, Items B., C., D., E., F., G., and H, up to 5 percent.
- J. SUBCONTRACTOR: The reasonable cost of all labor and material provided by a Subcontractor whose pricing is included and which complies with these Pricing Guidelines.
- K. CONTRACTOR MARK-UP ON SUBCONTRACTOR: Mark-up on items in Paragraph 1.5.J. up to 5 percent.
- L. MISCELLANEOUS: The following items are allowable at the cost of the Work, with no overhead or profit.

1. The cost of extending the Bond and the cost of extending liability, property damage, builder's risk or specialty coverage insurance.
2. The premium portion only for approved overtime (labor and fringes). The straight time portion is included in Paragraphs 1.5.B. and 1.5.C.
3. Fees for permits, licenses, inspections, tests, etc.
4. When requested by the Contractor and approved in writing by the Owner due to special circumstances, reimbursement will be paid for overnight lodging, travel and food in an amount not to exceed the Owner's travel guidelines.

M. Costs which will not be reimbursed for Change Order Work include the following:

1. Employee Profit Sharing Plans: Regardless of how defined or described, the Contractor will pay these charges from Contractor profit and will not be reimbursed.
2. Voluntary Employee Deductions: Examples are United Way and U.S. Savings Bonds, etc.

N. State sales tax shall be allowed on items as defined by Paragraph 1.6.

1.6 TAXES

- A. Only those materials which ultimately become a part of the completed structure or improvement which constitutes the Project will be exempt from State sales tax as provided in Section 5739.02, ORC, and State use tax as provided in Section 5741.01, ORC.
- B. The purchase, lease or rental of material, equipment, parts or expendable items such as form lumber, tools, oils, greases and fuels, which are used in connection with the Work, are subject to the application of State sales tax and State use tax.

1.7 ALLOWANCES

- A. Allowance Adjustment: For allowance-cost adjustment, base each Change Order Proposal on the difference between the actual purchase amount and the allowance, multiplied by the final measurement of work-in-place. Where applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, and similar margins.
 1. Include installation costs in the purchase amount only where indicated as part of the allowance.
 2. When requested, prepare explanations and documentation to substantiate the margins claimed.

1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: When the Owner and the Contractor disagree on the terms of a Proposal Request, the Architect/Engineer may issue a Construction Change Directive on a field instruction form. The Construction Change Directive instructs the Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. The Construction Change Directive contains a complete description of the change in the Work. It also designates the method to be followed to determine change in the Contract Sum or Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of the change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.9 CHANGE ORDER PROCEDURES

- A. Upon the Owner's approval of a Proposal Request, the Architect/Engineer will issue a Change Order for signatures of the Owner and the Contractor.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01200
PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Progress meetings.
 - 3. Coordination meetings.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" for submitting the Contractor's Construction Schedule.

1.3 PRECONSTRUCTION CONFERENCE

- A. Schedule a preconstruction conference before starting construction, at a time convenient to the Owner and the Architect/Engineer, but no later than 15 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect/Engineer, and their consultants; the Contractors and their superintendents; major subcontractors; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress, including the following:
 - 1. Tentative construction schedule.

2. Critical work sequencing.
3. Designation of responsible personnel.
4. Procedures for processing field decisions and Change Orders.
5. Procedures for processing Applications for Payment.
6. Distribution of Contract Documents.
7. Submittal of Shop Drawings, Product Data, and Samples.
8. Preparation of record documents.
9. Use of the premises.
10. Parking availability.
11. Office, work, and storage areas.
12. Equipment deliveries and priorities.
13. Safety procedures.
14. First aid.
15. Security.
16. Housekeeping.
17. Working hours.

1.4 PROGRESS MEETINGS

- A. Conduct progress meetings at the Project Site at regular intervals. Notify the Owner and the Architect/Engineer of scheduled meeting dates. Coordinate dates of meetings with preparation of the payment request. The job progress meetings will be facilitated by the Architect/Engineer.
- B. Attendees: In addition to representatives of the Owner and the Architect/Engineer, 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. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project.
 1. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to insure that current and subsequent activities will be completed within the Contract Time.
 2. Review the present and future needs of each entity present, including the following:

- a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Status of submittals.
 - e. Deliveries.
 - f. Off-site fabrication problems.
 - g. Access.
 - h. Site utilization.
 - i. Temporary facilities and services.
 - j. Hours of work.
 - k. Hazards and risks.
 - l. Housekeeping.
 - m. Quality and work standards.
 - n. Change Orders.
 - o. Documentation of information for payment requests.
- D. Reporting: The Architect/Engineer will distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
1. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule concurrently with the report of each meeting.

1.5 COORDINATION MEETINGS

- A. Conduct project coordination meetings at weekly intervals convenient for all parties involved. Project coordination meetings are in addition to specific meetings held for other purposes, such as regular progress meetings.
- B. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01270
UNIT PRICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for unit prices.
- B. Related Sections include the following:
 - 1. Division 1 Section "Contract Considerations or Modification Procedures" for procedures for submitting and handling Change Orders.

1.3 DEFINITIONS

- A. Unit price is 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 estimated quantities of Work required by the Contract Documents are increased or decreased.

1.4 PROCEDURES

- A. Unit prices include all necessary material, plus cost for delivery, installation, insurance, applicable taxes, overhead and profit.
- B. Measurement and Payment" Refer to individual Specification Sections for work that requires establishment of unit prices. Methods of measurement and payment for unit prices are specified in those Sections.
- C. Owner reserves the right to reject Contractor's measurement of work-in-place that involves use of established unit prices and to have this work measured, at Owner's expense, by an independent surveyor acceptable to Contractor.
- D. List of Unit Prices: A list of required unit prices is included on the Bid Proposal Form.

PART 2 - PRODUCTS (Not Used)

PART 3 – EXECUTION (Not Used)

END OF SECTION

SECTION 01300
SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Submittal schedule.
 - 3. Daily construction reports.
- B. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Applications for Payment" specifies requirements for submittal of the Schedule of Values.
 - 2. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 - 3. Division 1 Section "Project Meetings" specifies requirements for submittal and distribution of meeting and conference minutes.
 - 4. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 - 5. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
 - 1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
- B. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the prime Contractor to the Architect/Engineer using a transmittal form. The Architect/Engineer will not accept submittals received from sources other than the prime Contractors.

1.5 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: The Contractor shall prepare a fully developed, horizontal bar-chart-type, contractor's construction schedule. Submit within 15 days after the date established for "Commencement of the Work."

1.6 DAILY CONSTRUCTION REPORTS

- A. Prepare a weekly construction report recording the following information concerning events at the site, and submit copies to the Architect/Engineer at weekly intervals:
 - 1. List of subcontractors at the site.
 - 2. Approximate count of personnel at the site.
 - 3. High and low temperatures, general weather conditions.
 - 4. Accidents and unusual events.
 - 5. Stoppages, delays, shortages, and losses.
 - 6. Orders and requests of governing authorities.
 - 7. Change Orders received, implemented.
 - 8. Services connected, disconnected.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01340
SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submittal of Shop Drawings, Product Data, Samples, and other miscellaneous quality-control submittals.
- B. Shop Drawings include, but are not limited to, the following:
 - 1. Fabrication drawings.
 - 2. Installation drawings.
 - 3. Setting diagrams.
 - 4. Shopwork manufacturing instructions.
 - 5. Schedules.
 - a. Standard information prepared without specific reference to the Project is not Shop Drawings.
- C. Product Data include, but are not limited to, the following:
 - 1. Manufacturer's product specifications.
 - 2. Manufacturer's installation instructions.
 - 3. Standard color charts.
 - 4. Catalog cuts.
 - 5. Roughing-in diagrams and templates.
 - 6. Standard wiring diagrams.
 - 7. Printed performance curves.
 - 8. Operational range diagrams.
 - 9. Mill reports.
 - 10. Standard product operating and maintenance manuals.
- D. Samples include, but are not limited to, the following:
 - 1. Partial Sections of manufactured or fabricated components.
 - 2. Small cuts or containers of materials.
 - 3. Swatches showing color, texture, and pattern.
 - 4. Color range sets.
 - 5. Field samples.

- E. Quality-control submittals include, but are not limited to, the following:
 - 1. Design data.
 - 2. Certifications.
 - 3. Manufacturer's instructions.
 - 4. Manufacturer's field reports.
- F. Administrative Submittals: Refer to other Division 1 Sections and other Contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. Listing of subcontractors.
- G. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Coordination" specifies requirements governing preparation and submittal of required Coordination Drawings.
 - 2. Division 1 Section "Schedules and Reports" specifies requirements for submittal of required schedules and reports, including the Submittal Schedule.
 - 3. Division 1 Section "Quality Control" specifies requirements for submittal of inspection and test reports.
 - 4. Division 1 Section "Contract Closeout" specifies requirements for submittal of Project Record Documents, including copies of final Shop Drawings, at project closeout.

1.3 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
 - 1. Preparation of Coordination Drawings is specified in Division 1 Section "Coordination" and may include components previously shown in detail on Shop Drawings or Product Data.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.

1.4 SUBMITTAL PROCEDURES

- A. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal to the Architect/Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay.
 - 1. Coordinate each submittal with other submittals and related activities that require sequential activity including:
 - a. Testing.
 - b. Purchasing.
 - c. Fabrication.
 - d. Delivery.
 - 2. Coordinate transmittal of different types of submittals for the same element of the Work and different elements of related parts of the Work to avoid delay in processing because of the Architect/Engineer's need to review submittals concurrently for coordination.
 - a. The Architect/Engineer reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are forthcoming.
 - 3. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 2 weeks for the Architect/Engineer's initial review of each submittal. Allow additional time if the Architect/Engineer must delay processing to permit coordination with subsequent submittals. The Architect/Engineer will advise the Contractor when a submittal being processed must be delayed for coordination.
 - b. Where necessary to provide an intermediate submittal, process the intermediate submittal in the same manner as the initial submittal.
 - c. Allow 2 weeks for reprocessing each submittal.
 - d. The Architect/Engineer will not authorize an extension of time because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the Work to permit processing.
- B. Contractors Review: Submittals shall clearly indicate contractors and subcontractors review of the information submitted.
 - 1. Supplier, fabricator, subcontractor, and contractor's identification of their review and concurrence that the submittal meets the requirements of the contract documents shall be clearly indicated on each sheet.

2. Submittals that have not been so identified and/or submittals that have major or multiple discrepancies with contract documents will be returned without further review.
- C. Submittal Preparation: Place a permanent label or title block on each submittal for identification.
 1. Indicate name of the firm or entity that prepared each submittal on the label or title block.
- D. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the Contractor to the Architect/Engineer and to other destinations by use of a transmittal form. The Architect/Engineer will return submittals received from sources other than the Contractor.
 1. Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.
 2. Include the Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

1.5 SHOP DRAWINGS

- A. Submit newly prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed information as the basis of Shop Drawings.
 1. Include the following information on Shop Drawings:
 - a. Dimensions.
 - b. Identification of products and materials included.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.
 3. Highlight, encircle, or otherwise indicate deviations from the Contract Documents on the Shop Drawings.
 4. Do not allow Shop Drawing copies that do not contain an appropriate final stamp or other marking indicating the action taken by the Architect/Engineer to be used in construction.
 5. Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

6. Submittal: Submit one correctable, translucent, reproducible print and three blue- or black-line print for the Architect/Engineer's review. The Architect/Engineer will return the reproducible print and two copies.
 - a. The Contractor shall mark up and retain one copy of the returned reproducible as a "Record Document."

1.6 PRODUCT DATA

- A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.
 1. Where Product Data includes information on several similar products, some of which are not required for use on the Project, mark copies clearly to indicate which products are applicable.
 2. Where Product Data must be specially prepared for required products, materials, or systems because standard printed data are not suitable for use, submit as Shop Drawings not Product Data.
 3. Include the following information in Product Data:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with recognized trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 4. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.
- B. Submittals: Submit 2 copies of each required Product Data submittal. Submit 2 additional copies where copies are required for maintenance manuals. The Architect/Engineer will retain one copy and will return the other marked with the action taken and corrections or modifications required.
 1. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
- C. Distribution: Furnish copies of final Product Data submittal to the manufacturers, subcontractors, suppliers, fabricators, installers, governing authorities and others as required for performance of the construction activities. Show distribution on transmittal forms.
 1. Do not proceed with installation of materials, products, and systems until a copy of Product Data applicable to the installation is in the Installer's possession.

2. Do not permit use of unmarked copies of Product Data in connection with construction.

1.7 SAMPLES

- A. Submit full-size, fully fabricated Samples, cured and finished in the manner specified, and physically identical with the material or product proposed for use.
- B. Submittals: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation, and other characteristics, submit 3 sets of Samples. One set will be returned marked with the action taken.
 1. Maintain sets of Samples, as returned by the Architect/Engineer, at the Project Site, available for quality-control comparisons throughout the course of construction activity.
 2. Unless the Architect/Engineer observes noncompliance with provisions of the Contract Documents, the submittal may serve as the final submittal.
 3. Sample sets may be used to obtain final acceptance of the construction associated with each set.
- C. Distribution of Samples: Distribute additional sets of Samples to the subcontractors, suppliers, fabricators, manufacturers, installers, governing authorities, and others as required for performance of the Work. Show distribution on transmittal forms.
- D. Field samples specified in individual Specification Sections are special types of Samples. Comply with Sample submittal requirements to the fullest extent possible. Process transmittal forms to provide a record of activity.

1.8 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material, or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
 1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

1.9 ARCHITECT/ENGINEER'S ACTION

- A. Except for submittals for the record or for information, where action and return of submittals is required, the Architect/Engineer will review each submittal, mark to indicate the action taken, and return.
1. Compliance with specified characteristics is the Contractor's responsibility and not considered part of the Architect/Engineer's review and indication of action taken.
- B. Action Stamp: The Architect/Engineer will stamp each submittal with a uniform, action stamp. The Architect/Engineer will mark the stamp appropriately to indicate the action taken.
1. Architect/Engineer review portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|---------------------|-----------------------------|
| No Exceptions Taken | Acceptance for Construction |
| Note Markings | Incorporate Corrections |
| Rejected | Not Acceptable |
| Comments Attached | Incorporate Comments |
2. Response required of Contractor portion of the review stamp shall be interpreted as follows:
- | <u>Comment</u> | <u>Meaning</u> |
|----------------|---------------------------|
| Process | Proceed with Construction |
3. Other Action: Where a submittal is for information or record purposes or special processing or other activity, the Architect/Engineer will return the submittal marked "Action Not Required."
- C. Unsolicited Submittals: The Architect/Engineer will return unsolicited submittals to the sender without action.
- D. Incomplete or Inaccurate Submittals: The Architect/Engineer will return submittals that do not comply with contract requirements including, but not limited to, requirements of this section.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION

SECTION 01400
QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality-control services.
- B. Quality-control services include inspections, tests, and related actions, including reports performed by Contractor, by independent agencies, and by governing authorities. They do not include contract enforcement activities performed by Architect/Engineer.
- C. Inspection and testing services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with Contract Document requirements.
- D. Requirements of this Section relate to customized fabrication and installation procedures, not production of standard products.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified inspections, tests, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Architect/Engineer, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- E. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies requirements for development of a schedule of required tests and inspections.

1.3 RESPONSIBILITIES

- A. Contractor Responsibilities: Unless otherwise indicated as the responsibility of another identified entity, Contractor shall provide inspections, tests, and other quality-control services specified elsewhere in the Contract Documents and required by authorities having jurisdiction. Costs for these services are included in the Contract Sum.
- B. Retesting: The Contractor is responsible for retesting where results of inspections, tests, or other quality-control services prove unsatisfactory and indicate noncompliance with Contract Document requirements, regardless of whether the original test was Contractor's responsibility.
 - 1. The cost of retesting construction, revised or replaced by the Contractor, is the Contractor's responsibility where required tests performed on original construction indicated noncompliance with Contract Document requirements.
- C. Associated Services: Cooperate with agencies performing required inspections, tests, and similar services, and provide reasonable auxiliary services as requested. Notify the agency sufficiently in advance of operations to permit assignment of personnel.
- D. Duties of the Testing Agency: The independent agency engaged to perform inspections, sampling, and testing of materials and construction specified in individual Sections shall cooperate with the Architect/Engineer and the Contractor in performance of the agency's duties. The testing agency shall provide qualified personnel to perform required inspections and tests.
 - 1. The agency shall notify the Architect/Engineer and the Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. The agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.
 - 3. The agency shall not perform any construction duties of the Contractor.
- E. Coordination: Coordinate the sequence of activities to accommodate required services with a minimum of delay. Coordinate activities to avoid the necessity of removing and replacing construction to accommodate inspections and tests.

1.4 SUBMITTALS

- A. Unless the Contractor is responsible for this service, the independent testing agency shall submit a certified written report, in duplicate, of each inspection, test, or similar service to the Architect/Engineer. If the Contractor is responsible for the service, submit a certified written report, in duplicate, of each inspection, test, or similar service through the Contractor.
 - 1. Submit additional copies of each written report directly to the governing authority, when the authority so directs.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample taking and similar services, repair damaged construction and restore substrates and finishes. Comply with Contract Document requirements for Division 1 Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities, and protect repaired construction.
- C. Repair and protection is Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing, or similar services.

END OF SECTION

SECTION 01501
TEMPORARY FACILITIES & CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection.
- B. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Temporary electric power.
 - 3. Telephone service.
 - 4. Sanitary facilities, including drinking water.
 - 5. Storm and sanitary sewer.
- C. Support facilities include, but are not limited to, the following:
 - 1. Dewatering facilities and drains.
 - 2. Waste disposal services.
 - 3. Construction aids and miscellaneous services and facilities.
- D. Security and protection facilities include, but are not limited to, the following:
 - 1. Temporary fire protection.
 - 2. Barricades, warning signs, and lights.
 - 3. Sidewalk bridge or enclosure fence for the site.
 - 4. Environmental protection.

1.3 DIVISION OF RESPONSIBILITIES

- A. General: These Specifications assigns the Prime Contractor specific responsibilities for certain temporary facilities used at the site.
- B. Prime Contractor is responsible for the following:
 - 1. Installation, operation, maintenance, and removal of each temporary facility usually considered as its own normal construction activity, as well as the costs and use charges associated with each facility.
 - 2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.

3. Its own storage and fabrication sheds (as required).
4. Collection and disposal of its own hazardous, dangerous, unsanitary, or other harmful waste material.
5. Secure lockup of its own tools, materials, and equipment.
6. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
7. Temporary telephone service.
8. Temporary toilets, including disposable supplies.
9. General collection and disposal of wastes.
10. Barricades, warning signs, and lights.
11. Security enclosure and lockup.
12. Environmental protection.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to the Owner or the Architect/Engineer. The Architect/Engineer will not accept a Prime Contractor's cost or use charges for temporary services or facilities as a basis of claim for an adjustment in the Contract Sum or the Contract Time.
- B. Water Service: Use water from the Owner's existing water system without metering and without payment of use charges.
- C. Electric Power Service: Use of electricity from Owner's existing system without metering or payment.
- D. Owner may terminate privilege of existing building heat, power, or water if abuse or excessive use by the contractor exists.

1.5 SUBMITTALS

Not used.

1.6 QUALITY ASSURANCE

- A. Regulations: Prime Contractor shall comply with industry standards and with applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 1. Building code requirements.
 2. Health and safety regulations.
 3. Utility company regulations.
 4. Police, fire department and rescue squad rules.
 5. Environmental protection regulations.
- B. Standards: Prime Contractor shall comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI-A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."

1. Electrical Service: Comply with NEMA, NECA and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

1.7 PROJECT CONDITIONS

- A. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Each Prime Contractor shall provide new materials. If acceptable to the Architect/Engineer, undamaged, previously used materials in serviceable condition may be used. Provide materials suitable for use intended.

2.2 EQUIPMENT

- A. General: Each Prime Contractor shall provide new equipment. If acceptable to the Architect/Engineer, undamaged, previously used equipment in serviceable condition may be used. Provide equipment suitable for use intended.
- B. Electrical Power Cords: Provide grounded extension cords. Use hard-service cords where exposed to abrasion and traffic. Provide waterproof connectors to connect separate lengths of electric cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.
- C. Temporary Toilet Units: Provide self-contained, single-occupant toilet units of the chemical, aerated recirculation, or combustion type. Provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. If existing toilet facilities in the building are operational during construction, contractor may use these facilities.
- D. Fire Extinguishers: Provide hand-carried, portable, UL-rated, Class A fire extinguishers for temporary offices and similar spaces. In other locations, provide hand-carried, portable, UL-rated, Class ABC, dry-chemical extinguishers or a combination of extinguishers of NFPA-recommended classes for the exposures.
 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Use qualified personnel for installation of temporary facilities. Locate facilities where they will serve the Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Prime Contractor shall provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. Sanitary facilities include temporary toilets and wash facilities. Comply with regulations and health codes for the type, number, location, operation, and maintenance of fixtures and facilities. Install where facilities will best serve the Project's needs.
 - 1. Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Provide covered waste containers for used material.
- B. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy. Use of pit-type privies will not be permitted.
 - 1. Provide separate facilities for male and female personnel.
- C. Wash Facilities: Install wash facilities supplied with potable water at convenient locations for personnel involved in handling materials that require wash-up for a healthy and sanitary condition. Dispose of drainage properly. Supply cleaning compounds appropriate for each condition.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Collection and Disposal of Waste: Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80 deg F (27 deg C). Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion, or longer, as requested by the Architect/Engineer.

- B. Barricades, Warning Signs, and Lights: Comply with standards and code requirements for erecting structurally adequate barricades. Paint with appropriate colors, graphics, and warning signs to inform personnel and the public of the hazard being protected against. Where appropriate and needed, provide lighting, including flashing red or amber lights.
- C. Security Enclosure and Lockup: Install substantial temporary enclosure of partially completed areas of construction. Provide locking entrances to prevent unauthorized entrance, vandalism, theft and similar violations of security.
 - 1. Storage: Where materials and equipment must be stored, and are of value or attractive for theft, provide a secure lockup. Enforce discipline in connection with the installation and release of material to minimize the opportunity for theft and vandalism.
- D. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. Limit availability of temporary facilities to essential and intended uses to minimize waste and abuse.
- B. Maintenance: Maintain facilities and good operating condition until removal. Protect from damage by freezing temperatures and similar elements.
- C. Termination and Removal: Unless the Architect/Engineer requests that it be maintained longer, remove each temporary facility when the need has ended, when replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with the temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.

END OF SECTION

SECTION 01600
MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements governing the Contractor's selection of products for use in the Project.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1 Section "Submittals" specifies requirements for submittal of the Contractor's Construction Schedule and the Submittal Schedule.

1.3 DEFINITIONS

- A. Definitions used in this Article are not intended to change the meaning of other terms used in the Contract Documents, such as "specialties," "systems," "structure," "finishes," "accessories," and similar terms. Such terms are self-explanatory and have well-recognized meanings in the construction industry.
 - 1. "Products" are items purchased for incorporation in the Work, whether purchased for the Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - a. "Named Products" are items identified by the manufacturer's product name, including make or model number or other designation, shown or listed in the manufacturer's published product literature, that is current as of the date of the Contract Documents.
 - 2. "Materials" are products substantially shaped, cut, worked, mixed, finished, refined or otherwise fabricated, processed, or installed to form a part of the Work.
 - 3. "Equipment" is a product with operational parts, whether motorized or manually operated, that requires service connections, such as wiring or piping.

1.4 SUBMITTALS

- A. Product List: Prepare a list showing products specified in tabular form acceptable to the Architect/Engineer. Include generic names of products required. Include the manufacturer's name and proprietary product names for each item listed.
1. Coordinate product list with the Contractor's Construction Schedule and the Schedule of Submittals.
 2. Form: Prepare product list with information on each item tabulated under the following column headings:
 - a. Related Specification Section number.
 - b. Generic name used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 3. Initial Submittal: Within 15 days after date of commencement of the Work, submit 3 copies of an initial product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 - a. At the Contractor's option, the initial submittal may be limited to product selections and designations that must be established early in the Contract period.
 4. Completed List: Within 30 days after date of commencement of the Work, submit 3 copies of the completed product list. Provide a written explanation for omissions of data and for known variations from Contract requirements.
 5. Architect/Engineer's Action: The Architect/Engineer will respond in writing to Contractor within 1 week of receipt of the completed product list. No response within this period constitutes no objection to listed manufacturers or products but does not constitute a waiver of the requirement that products comply with Contract Documents. The Architect/Engineer's response will include a list of unacceptable product selections, containing a brief explanation of reasons for this action.

1.5 QUALITY ASSURANCE

- A. Source Limitations: To the fullest extent possible, provide products of the same kind from a single source.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products according to the manufacturer's recommendations, using means and methods that will prevent damage, deterioration, and loss, including theft.
 - 1. Schedule delivery to minimize long-term storage at the site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to assure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to the site in an undamaged condition in the manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Store products subject to damage by the elements above ground, under cover in a weathertight enclosure, with ventilation adequate to prevent condensation. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, new at the time of installation.
 - 1. Provide products complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and the intended use and effect.
 - 2. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

PART 3 - EXECUTION

3.1 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.
 - 1. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION

SECTION 01700
CONTRACT CLOSEOUT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Requirements of the contract documents including Division 1 specifications, apply to this section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project record document submittal.
 - 3. Submittal of warranties.
 - 4. Final cleaning.
- B. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 16.

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the Work claimed as substantially complete.
 - a. Include supporting documentation for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the Contract Sum.
 - b. 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 the Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases enabling the Owner unrestricted use of the work. Include occupancy permits and similar releases.

5. Submit record drawings, damage or settlement surveys, property surveys, and similar final record information.
 6. Deliver spare parts and similar items.
 7. Make final changeover of permanent locks and transmit keys to the Owner. Advise the Owner's personnel of changeover in security provisions.
 8. Discontinue and remove temporary facilities from the site, construction tools, and similar elements.
 9. Complete final cleanup requirements.
- B. Inspection Procedures: On receipt of a request for inspection, the Architect/Engineer will either proceed with inspection or advise the Contractor of unfilled requirements. The Architect/Engineer will prepare the Certificate of Substantial Completion following inspection or advise the Contractor of construction that must be completed or corrected before the certificate will be issued.
1. The Architect/Engineer will repeat inspection when requested and assured that the Work is substantially complete.
 2. Results of the completed inspection will form the basis of requirements for final acceptance.
 3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.4 FINAL ACCEPTANCE

- A. Preliminary Procedures: Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include insurance certificates for products and completed operations where required.
 2. Submit an updated final statement, accounting for final additional changes to the Contract Sum.
 3. Submit a certified copy of the Architect/Engineer's final inspection list of items to be completed or corrected, endorsed and dated by the Architect/Engineer. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance and shall be endorsed and dated by the Architect/Engineer.
 4. Submit consent of surety to final payment.
 5. Submit a final liquidated damages settlement statement.
 6. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Reinspection Procedure: The Architect/Engineer will reinspect the Work upon receipt of notice that the Work, including inspection list items from earlier

inspections, has been completed, except for items whose completion is delayed under circumstances acceptable to the Architect/Engineer.

1. Upon completion of reinspection, the Architect/Engineer will prepare a certificate of final acceptance. If the Work is incomplete, the Architect/Engineer will advise the Contractor of Work that is incomplete or of obligations that have not been fulfilled but are required for final acceptance.
2. If necessary, reinspection will be repeated.
3. Cost and Architect/Engineer fees for multiple or extensive inspections due to incomplete or faulty work by the Contractor may be deducted from the contractor's contract.

1.5 RECORD DOCUMENT SUBMITTALS

- A. Record Drawings: Maintain a clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark which 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 that would be 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 the Work.
 2. Mark new information that is important to the Owner but was not shown on Contract Drawings or Shop Drawings.
 3. Note related change-order numbers where applicable.
 4. Organize record drawing sheets into manageable sets. Bind sets with durable-paper cover sheets; print suitable titles, dates, and other identification on the cover of each set.
- B. Record Specifications: Maintain one complete copy of the Project Manual, including addenda. Include with the Project Manual one copy of other written construction documents, such as Change Orders and modifications issued in printed form during construction.
1. Mark these documents to show substantial variations in actual Work performed in comparison with the text of the Specifications and modifications.
 2. Give particular attention to substitutions and selection of options and information on concealed construction that cannot otherwise be readily discerned later by direct observation.
 3. Note related record drawing information and Product Data.
 4. Upon completion of the Work, submit record Specifications to the Architect/Engineer for the Owner's records.
- C. Record Product Data: Maintain one copy of each Product Data submittal. Note related Change Orders and markup of record drawings and Specifications.

1. 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 the manufacturer's installation instructions and recommendations.
2. Give particular attention to concealed products and portions of the Work that cannot otherwise be readily discerned later by direct observation.
3. Upon completion of markup, submit complete set of record Product Data to the Architect/Engineer for the Owner's records.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

3.2 FINAL CLEANING

- A. General: The General Conditions require general cleaning during construction. Regular site cleaning is included in Division 1 Section "Construction Facilities and Temporary Controls."
- B. Clean the site, including landscape development areas, of rubbish, litter, and other foreign substances. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits. Rake grounds that are neither paved nor planted to a smooth, even-textured surface.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of the Work during construction.
- D. Compliance: Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from the site and dispose of lawfully.

END OF SECTION

SECTION 02920

LAWNS AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and General and Special Conditions of the Contract for Construction and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide lawns and grasses complete, as indicated on drawings, as specified, and as required for proper completion of the work.
- B. Related Sections include the following:
 - 1. Division 2 Section "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Division 2 Section "Earthwork" for excavation, filling and backfilling, and rough grading.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of topsoil.
- B. Topsoil: Native or imported topsoil, or surface soil modified to become topsoil; mixed with soil amendments.
- C. Subgrade: Surface or elevation of subsoil remaining after completing excavation, or top surface of a fill or backfill immediately beneath topsoil.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Maintenance Instructions: Recommended procedures to be established by Owner for maintenance of lawns during a calendar year. Submit before expiration of required maintenance periods.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful lawn establishment.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.7 SCHEDULING

- A. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit.

1.8 LAWN MAINTENANCE

- A. Begin maintenance immediately after each area is planted and continue until acceptable lawn is established.
- B. Maintain and establish lawn by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and re-mulch to produce a uniformly smooth lawn.
 - 1. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch. Anchor as required to prevent displacement.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawn uniformly moist to a depth of 4 inches (100 mm).
 - 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 - 2. Water lawn at a minimum rate of 1 inch (25 mm) per week.
- D. Mow lawn as soon as top growth is tall enough to cut. Repeat mowing to maintain specified height without cutting more than 40 percent of grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 - 1. Mow grass 2 to 3 inches (50 to 75 mm) high.
- E. Lawn Postfertilization: Apply fertilizer after initial mowing and when grass is dry.
 - 1. Use fertilizer that will provide actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) to lawn area.

1.9 GUARANTEE

- A. The Contractor shall guarantee the production of a healthy, uniform, close stand of grass; free of weeds and insects.
- B. Bare spots of more than 2 percent of the total shall be unacceptable and the contractor shall reseed following the specification for the initial installation.

PART 2 - PRODUCTS

2.1.1 GRASS SEED

A. Turfgrass Sod: Approved Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture, strongly rooted, and capable of vigorous growth and development when planted.

B. Turfgrass Species: Sod of grass species as follows, with not less than 95 percent germination, not less than 85 percent pure seed, and not more than 0.5 percent weed seed:

- 1. Full Sun: Kentucky bluegrass (*Poa pratensis*), a minimum of three cultivars.
- 2. Sun and Partial Shade: Proportioned by weight as follows:
 - a. 15 percent Parade Kentucky bluegrass.
 - b. 15 percent Park Kentucky Blue Grass.
 - c. 20 percent Delray Perennial Rye.
 - d. 20 percent Pennant Perennial Rye.
 - e. 30 percent Pennlawn Creeping Red Fescue

2.2 TOPSOIL

- A. Topsoil: Natural, fertile, sandy loam soil capable of sustaining vigorous plant growth and of uniform composition throughout.
- B. Mechanical analysis shall be as follows:

	Range	Average
Sand (0.05-2.0 mil dia. range)	30-70%	50%
Silt (.002-.5 mil dia. range)	20-50%	35%
Clay	5-25%	15%, except provide topsoil

(Less than .002 mil dia. range)		with a higher (40-55%) clay content at areas that slope more than 10%.
Passing	95%	
PH		6.5-7.0
Organic Matter		10%-15%

1. Topsoil shall be free from stones 1/2 inch in longest dimension, lumps, vegetation, plant parts, and all deleterious material.

2. Topsoil shall be tested for nutrients.

3. Obtain Architect's approval, prior to placing or spreading of any topsoil over the site.

- C. Obtain topsoil displaced from naturally well-drained construction or mining sites where topsoil occurs at least 4 inches (100 mm) deep; do not obtain from bogs or marshes.

2.3 INORGANIC SOIL AMENDMENTS

- A. Inorganic Amendment used shall be determined based on soils testing and recommendations in report.

- B. Fertilizer: Granular, non-burning product composed of not less than 50% organic, and shall contain the following percentages by weight:

10% nitrogen

20% phosphoric acid

15% potash

2.4 EROSION-CONTROL MATERIALS

- A. Provide only as indicated on drawings.

- B. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

- C. Erosion-Control Fiber Mesh: Biodegradable twisted jute or spun-coir mesh, a minimum of 0.92 lb/sq. yd. (0.5 kg/sq. m), with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches (150 mm) long.

2.5 MULCH

- A. Mulch: Clean oat or wheat straw, well seasoned before bailing, free from mature seed-bearing stalks or roots of prohibitive or noxious weed.
- B. Mulch for Hydroseeding Mixture: Wood cellulose such as Conwed or Silva Fiber brands or an approved equal.
- C. Tackifier for Straw Mulch: Non-asphaltic tackifier that will not inhibit germination and plant growth.

3 EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and other conditions affecting performance. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect adjacent and adjoining areas from hydroseeding overspray.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Limit lawn subgrade preparation to areas to be planted.
- D. Newly Graded Subgrades: Loosen subgrade to a minimum depth of 4 inches (100 mm). Remove stones larger than 1/2 inch (25 mm) in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply fertilizer directly to subgrade before loosening.
 - 2. Spread topsoil mix to a depth of 4 inches (100 mm) but not less than required to meet finish grades after light rolling and natural settlement. Do not spread if topsoil or subgrade is frozen, muddy, or excessively wet.
 - a. Spread approximately one-half the thickness of topsoil mix over loosened subgrade. Mix thoroughly into top 2 inches (50 mm) of subgrade. Spread remainder of topsoil mix.

E. Unchanged Subgrades: If lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare surface soil as follows:

1. Remove existing grass, vegetation, and turf. Do not mix into surface soil.
2. Loosen surface soil to a depth of at least of 4". Apply soil amendments and fertilizers and mix thoroughly into top 4 inches (100 mm) of soil. Till soil to a homogeneous mixture of fine texture.

a. Apply fertilizer directly to surface soil before loosening.

3. Remove stones larger than 1/2 inch (25 mm) in any dimension and sticks, roots, trash, and other extraneous matter.
 4. Legally dispose of waste material, including grass, vegetation, and turf, off Owner's property.
- F. Finish Grading: Grade planting areas to a smooth, uniform surface plane with loose, uniformly fine texture. Grade to within plus 1/2 inch, no minus (13 mm) of finish elevation. Roll and rake, remove ridges, and fill depressions to meet finish grades. Rake and level to provide topsoil which is smooth, without hollows, with a fine and uniform earth surface ready for seeding. Limit fine grading to areas that can be planted in the immediate future.
1. Perform fine grading necessary with a drag or rake prior to seeding. Irregularities the surface shall be corrected in order to prevent the formation of depressions or water pockets.

G. Moisten prepared lawn areas before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

H. Restore areas if eroded or otherwise disturbed after finish grading and before planting.

3.3 FERTILIZER - MECHANICAL APPLICATION

- A. Spread fertilizer by mechanical spreader at the rate of 1# nitrogen per 1000 square feet.
- B. Fertilizer shall be spread immediately prior to seeding. Fertilizer must be dry and free flowing when applied. No caked or deteriorated materials shall be used.
- C. Fertilizer shall be incorporated into the top 4 inches of the soil. Spread uniformly. Do not overlap.

3.4 SEEDING – MECHANICAL APPLICATION

- A. Seed immediately after preparation of area to be seeded.
- B. Seed all areas within contract limits on/or areas disturbed as a result of construction.
- C. Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mps (8 km/h). Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.
 - 1. Do not use wet seed or seed that is moldy or otherwise damaged.
- D. Sow seed at the rate of 10 lb/1000 sq. ft.
- E. Rake seed lightly into top 1/8 inch (3mm) of topsoil, roll lightly, and water with fine spray.
- F. Protect seeded areas with slopes exceeding 1:6 with erosion-control fiber mesh and 1:4 with erosion-control blankets installed and stapled according to manufacturer's written instructions.
- G. Protect seeded areas with slopes not exceeding 1:6 by spreading straw mulch. Spread uniformly at a minimum rate of 2 tones/acre (42 kg/'92.9 sq. m) to form a continuous blanket 1-1/2 inches (38mm) in loose depth over seeded areas. Spread by hand, blower or other suitable equipment.
 - 1. Anchor straw mulch by crimping into topsoil with suitable mechanical equipment.
 - 2. Bond straw mulch by spraying with asphalt emulsion at the rate of 2-50# bales/1000 sq. ft (38 to 49 L/92.9 sq. m). Take precautions to prevent damage or staining of structures or other plantings adjacent to mulched areas. Immediately clean damaged or stained areas.
- H. Protect seeded areas from hot, dry weather or drying winds by applying mulch within 24 hours after completing seeding operations. Soak and scatter uniformly to a depth of 3/16 inch (4.8 mm) and roll to a smooth surface.

3.5 HYDROSEEDING

- A. Hydroseeding; Mix specified seed, fertilizer and fiber mulch in water, using equipment specifically designed for hydroseed application. Continue mixing until uniformly blended into homogeneous slurry suitable for hydraulic application.
- B. Hydroseeding shall be done with a hydraulic mulcher. The hydroseeding application shall be applied from a hose and nozzle attachment to the hydro-seeder. The nozzle will be directed at the soil in a way to achieve maximum mixing of foil and seed. Seed, fertilizer and mulch shall be tank

mixed and agitated thoroughly prior to application. Contractor shall apply mixture with care, protecting all non-turf areas from spray.

Application Rate per 1,000 S.F.

Lawn Seed: 10 lbs

Ditch Slope Seed: 10 lbs

Fertilizer: Yielding one pound nitrogen

Mulch: 46 lbs.

1. Mix slurry with non-asphaltic tackifier that will not inhibit normal seed germination and plant growth.
 2. Apply slurry uniformly to all areas to be seeded in a one-step process. Apply mulch at a minimum rate of 1500-lb/acre (15.3-kg/92.9 sq.m) dry weight but not less than the rate required to obtain specified seed-sowing rate.
- C. The contractor shall be responsible for clean-up of hydroseed mixture from any non-turf areas within 24 hours of application. Vehicles sprayed with mixture shall be immediately cleaned to the Owner's satisfaction, at the contractor's expense.

3.6 LAWN RENOVATION

- A. Renovate existing lawn damaged by contractor's operations, such as storage of materials or equipment and movement of vehicles.
1. Reestablish lawn where settlement or washouts occur or where minor regrading is required.
- B. Remove sod and vegetation from diseased or unsatisfactory lawn areas; do not bury in soil.
- C. Remove topsoil containing foreign materials resulting from Contractor's operation, including oil drippings, fuel spills, stone, gravel and other construction materials, and replace with new topsoil.
- D. Mow, dethatch, core aerate, and rake existing lawn.
- E. Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf and legally dispose of them off Owner's property.

- G. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches (150 mm).
- H. Apply soil amendments and initial fertilizers required for establishing new lawns and mix thoroughly into top 4 inches (100 mm) of existing soil. Provide new topsoil to fill low spots and meet finish grades.
- I. Apply seed and protect with straw mulch as required for new lawns.
- J. Water newly planted areas and keep moist until new lawn is established.

3.7 SATISFACTORY LAWNS

- A. Satisfactory Seed Lawn: At end of maintenance period, a healthy, uniform, close stand of grass has been established, free of weeds and surface irregularities, with coverage exceeding (90 percent over any 10 sq. ft. (0.92 sq. m) and bare spots not exceeding 5 by 5 inches (125 by 125 mm).
- B. Reestablish lawns that do not comply with requirements and continue maintenance until lawns are satisfactory.

3.8 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period and remove after lawn is established.
- C. Remove erosion-control measures after grass establishment period.

END OF SECTION

SECTION 03 30 00

CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Cast-in-place concrete floors, footings and foundation walls.
- B. Floors and slabs on grade.
- C. Control, and expansion and contraction joint devices associated with concrete work.
- D. Related Sections - Section 1.

1.3 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Guide for Concrete Floor and Slab Construction.
- C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- D. ACI 305R - Hot Weather Concreting.
- E. ACI 306R - Cold Weather Concreting.
- F. ACI 308 - Standard Practice for Curing Concrete.
- G. ACI 3 Building Code Requirements for Reinforced Concrete.
- H. ANSI/ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- I. ANSI/ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
- J. ANSI/ASTM D1751 - Preformed Expansion Joint Fillers for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types).
- K. ANSI/ASTM D1752 - Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction.
- L. ASTM B221 - Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes.
- M. ASTM C33 - Concrete Aggregates.

- N. ASTM C94 - Ready-Mixed Concrete.
- O. ASTM C150 - Portland Cement.
- P. ASTM C260 - Air Entraining Admixtures for Concrete.
- Q. ASTM C330 - Light Weight Aggregates For Structural Concrete.
- R. ASTM C494 - Chemicals Admixtures for Concrete.
- S. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

1.4 SUBMITTALS

- A. Submittals shall be in accordance with requirements of Section 01300 and shall include:
 - 1. Shop Drawings for Review:
 - a. Concrete mix designs including substantiating data and test records. Concrete Mix Design, Proportioning.
 - b. Product literature for admixtures, curing compounds, and miscellaneous materials.
 - c. Locations of construction and control joints not shown on drawings, and proposed changes in locations.
 - d. Material certifications.
 - e. Aggregate gradation and percentages of deleterious substances.
 - f. Batch plant certification.
 - g. Placing Drawings Shall Indicate:
 - 1) Construction joints, splice locations, and splice lengths.
 - 2) Bending schedules.
 - 3) Accessories.
 - 2. Information for the Record:
 - a. Manufacturer's application instructions for miscellaneous materials.
 - b. Quality control test reports.
 - c. Slab profile report.
- B. Copy of concrete delivery ticket shall be presented to Resident Project Representative for each batch. Delivery ticket shall indicate:
 - 1. Name of ready-mixed company and plant designation.

2. Truck number.
3. Concrete class.
4. Quantity of concrete.
5. Date.
6. Time when batch was loaded.
7. Type and name of admixtures.
8. Actual batch weights of cement, fly ash, aggregates, and water.
9. Location of pour and time of unloading shall be added to the ticket at site.

1.3 QUALITY ASSURANCE

- A. Concrete work shall comply with provisions of the current editions of the following codes, specifications, and standards, except where more stringent requirements are shown or specified.
 1. ACI American Concrete Institute.
 2. CRSI "Manual of Standard Practice."
 3. AWS "Code for Welding in Building Construction."
- B. Concrete Manufacturer Qualifications - Manufacturer of ready-mixed concrete products complying with ASTM C94 requirements for production facilities and equipment.
- C. Concrete Testing Service - A qualified independent testing agency shall perform material evaluation tests and shall design concrete mixes.
- D. Maintain adequate supervision and control of dewatering operation to ensure that stability of excavated and constructed slopes are not adversely affected by water, erosion is controlled, and flooding of excavation or damage to structures does not occur.
- E. Batch Plant:
 1. Batch Plant shall be central batch plant with automatic or semi-automatic control. Concrete may be mixed using either central-mixed, shrink-mixed, or truck-mixed methods. If concrete is shrink-mixed or truck-mixed, the truck and concrete producer shall conform to ASTM C94.
 2. Batch Plant shall be certified by National Ready Mixed Concrete Association (NRMCA). Evidence of current certification shall be submitted.
 3. In lieu of NRMCA certification, Contractor may submit copy of NRMCA "Checklist for Certification of Ready Mixed Concrete Production Facilities" executed and certified by independent Professional Engineer registered in state of project site.
- F. Pre-Installation Conferences:

1. Before beginning concrete work, Contractor shall hold a meeting to review detailed requirements for preparing concrete mix designs and to determine proper procedures for concrete construction.
2. A representative of Contractor, testing laboratory, concrete producer, and Engineer shall be in attendance.

1.4 DELIVERY AND HANDLING

- A. Concrete shall be delivered in accordance with ASTM C94, except concrete shall be completely discharged within one hour after introduction of mixing water to cement.
- B. Concrete shall be delivered in agitating trucks or in mixing trucks operating at agitating speed.

PART 2 PRODUCTS

- 2.1 MATERIALS - Materials used in concrete construction shall meet all the requirements of applicable ASTM and other industry standards.
- A. Portland Cement - ASTM C150, Type I or II unless indicated otherwise.
 - B. Air-entraining Agent - ASTM C260, chloride ion free.
 - C. Chemical Admixtures - NOT USED
 - D. Pozzolan (Fly Ash) (Fly Ash) (GGBF Slag) - ASTM C618, Class F. ASTM C989 grade 100 or low and shall contain less than 12 percent alumina (C34).
 - E. Aggregates - ASTM C33. Clean, sharp, natural sand.
 - F. Reinforcing Steel - ASTM A615, Grade 60, deformed.
 - G. Welded Wire Fabric; Plain - ASTM A185, (undeformed wires) with weld intersections not exceeding 12-inch.
 - H. Water - ASTM C94, clean and potable.
 - I. Membrane Curing Compound - ASTM C309, minimum 30 percent solids content, non-yellowing, moisture loss not to exceed .039 grams per square cm in 72 hours when applied at a coverage rate of 250 square feet per gallon, VOC compliant. "Safe Cure & Seal - 30 percent by Dayton Superior or equal.
 - J. Sheet Curing Compound - ASTM C171.
 - K. Formwork - ACI 301 and ACI 347R.
 - L. Form Coating - Non-staining.
 - M. Preformed Expansion Joint Filler:
 1. Exterior Walks and Pavements - "Sealtight Fibre" by W. R. Meadows or approved equal; asphalt impregnated cellular fibers securely bonded together in conformance with ASTM D1751.

2. Other Location - "Sealtight Self Expanding Cork" by W. R. Meadows or approved equal: self-expanding cork type expansion joint filler in conformance to ASTM D1752, Type III.
 3. Isolation Joints - "Ceramar Flexible Foam" by W. R. Meadows or approved equal; flexible foam expansion joint filler.
- N. Joint Sealer, Vertical - ASTM C920, Type M, Class 25, Grade NS, Dymeric, by Tremco or Sikaflex - 2C NS@ by Sika Corp. or approved equal.
- O. Joint Sealer, Horizontal - ASTM C920: THC-900, by Tremco or "Sikaflex - 2C SL" by Sika Corp. or approved equal.
- P. Vapor Barrier - ASTM D2103 - 6 mil polyethylene.
- Q. Waterstop - PVC, Corps of Engineers, CRD-C 575, min. tensile strength 2000 psi.
- Type A Waterstop - TAMMS/HORN Type 7D1 or equal.
- Type B Waterstop - TAMMS/HORN Type DB-2 or equal. Waterstops shall have hog rings (factory installed) at maximum spacing of 12 inches.
- R. Miscellaneous Metals - ASTM A36
- S. Anchor Bolts - ASTM A307
- T. Expansion Bolts - Hilti Kwik Bolt II or approved equal.
- U. Anchor Bolt Sleeves - Sinco Products, Inc. or approved equal; high density polyethylene
- V. Bonding Agent for New to Existing Concrete - "Sika Armatec 110 Epocem" by Sika or equal. (Epoxy modified cementitious product.)
- W. Dry Shake, Non-Metallic - "Surflex" by Euclid or "Mastercorn" by Masterbuilders, or equal.
- X. Galvanizing - ASTM A123 or A153.
- Y. Epoxy Adhesive for Embedding Dowels into Existing Structures - 100 percent solids, 100 percent reactive epoxy conforming to ASTM C881, Type IV, with 3000 psi minimum bond strength at 14 days. "Resi-Bond (J-58)" by Dayton Superior or equal.
- Z. Joint Dowel Bars - Plain steel bars, ASTM A 615, Grade 60. Cut bars true to length with ends square and free of burrs.
- AA. Include spacers, chairs, bolsters, ties, and other devices that conform to CRSI specifications necessary for properly placing, supporting and fastening reinforcement in place. Metal accessories shall be plastic coated, galvanized or stainless steel where legs will be exposed in finished concrete surfaces. For slabs-on-grade, use supports with sand plates or horizontal runners for any areas where the base material will not support chair legs. For exposed-to-view concrete surfaces where legs of supports are in contact with forms, provide supports with legs that are protected by plastic (CRSI, Class 1) or stainless steel (CRSI, Class 2).

- BB. Use one (1) brand of cement throughout the entire project, unless otherwise approved by the Owner Representative and Architect/Engineer.

2.2 CONCRETE MIX DESIGN

- A. Mixture proportioning for concrete structures shall be in accordance with ACI 301, 318, and 211.1 but subject to the following requirements.
- B. 4,000 PSI, minimum 6-1/2-94 lb. sacks of cement per cubic yard, air entrainment of 6% plus or minus 1% with aggregate standard within the industry. NO admixtures shall be used in the concrete mix.
- C. Contractor shall design and be responsible for the performance of all concrete mixes of specified quality, consistency, and workability to permit concrete to be worked readily into forms and around reinforcement without segregation or excessive bleeding. Hardened concrete shall develop all characteristics required by contract documents.
- D. Concrete mixes shall be proportioned to maximize durability and water tightness and to minimize shrinkage. To this end, total water content shall be kept to the lowest possible amount consistent with placing and consolidation methods. Water reducing and high range water reducing admixtures shall be used as required to maintain workability. Specified water/cementitious ratio shall not be exceeded.
- E. Concrete proportions shall be established on the basis of previous field experience, or laboratory trial batches in accordance with ACI 301, ACI 211.1 and ACI 318. Proposed mix design shall be accompanied by complete standard deviation analysis or trial mixture test data.
- F. Concrete proportions shall be subject to Owner Representative and Architect/Engineer's approval. Substantiating data and test records shall be submitted.
- G. Synthetic Fiber: Uniformly disperse in concrete mix at manufacturer's recommended rate, but not less than 1.5 lb/cu. yd. (0.90 kg/cu. M).

2.3 FIBER REINFORCEMENT

- A. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.
 - 1. Products:
 - a. Monofilament Fibers:
 - 1) Axim Concrete Technologies; Fibrasol IIP.
 - 2) Euclid Chemical Company (The); Fiberstrand 100.
 - 3) FORTA Corporation; Forta Mono.
 - 4) Grace, W. R. & Co.--Conn.; Grace MicroFiber.

- 5) Metalcrete Industries; Polystrand 1000.
- 6) SI Concrete Systems; Fibermix Stealth.
- 7) Or Approved Equals

PART 3 EXECUTION

3.1 COORDINATION

- A. Reinforcement, sleeves, inserts, anchors, waterstops, and other embedded items shall be accurately placed, supported, and tied prior to concrete placement. Other trades and contractors required to furnish embedded items shall be given ample notice of concrete placement. Reinforcement and embedded items shall be subject to review of Resident Project Representative prior to placing concrete.
- B. Contractor shall notify Owner Representative and Architect/Engineer a minimum of 24 hours before placing concrete, excluding nonworking days.
- C. Concrete shall be placed only between hours of 8:00 a.m. and 5:00 p.m., unless otherwise permitted. Concreting shall not be placed after 12:00 noon on the last working day of the week.
- D. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

3.2 PREPARATION

- A. Unless adequate protection is provided, concrete shall not be placed during rain, sleet, or snow, or when inclement weather is imminent.
- B. Cold Weather - Whenever the average temperature of surrounding air is expected to be below 40 degree F during placing or within 24 hours thereafter, cold weather concreting in accordance with ACI 306R "standard specification for "Cold Weather Concreting shall apply.
- C. Concrete shall be protected from extremes in temperature as specified. During periods not defined as cold weather, but when freezing outdoor temperatures are foreseen or occur, concrete surfaces shall be protected against freezing for the first 24 hours, minimum, after placement.
- D. Hot Weather:
 - 1. When the ambient temperature is 90 degree F or above, or when conditions of concrete temperature, air temperature, wind velocity, and relative humidity combine to cause flash set, excessively low slump, cold joints, plastic shrinkage cracking, or otherwise impair the quality of concrete, hot weather concreting procedures in accordance with "Hot Weather Concreting - ACI 305R," shall apply.

2. When the evaporation rates of bleed water exceeds 0.1 pounds per square feet per hour, steps shall be taken to prevent plastic shrinkage cracking. Evaporation rate shall be determined by method shown in "Hot Weather Concreting" (ACI 305R).

3.3 INSPECTION, STARTUP, AND TRAINING

- A. Notify Owner Representative and Architect/Engineer 24 hours prior to placement of concrete.
- B. Owner Representative and Arcchitect/Engineer's approval is required for subgrade, formwork, and reinforcing prior to starting each placement.
- C. Submit proposed concrete mix design to Owner Representative and Arcchitect/Engineer for review prior to commencement of any work. Do not begin concrete production until the proposed mix design has been approved.
- D. The following tests shall be performed by an independent testing laboratory acceptable to the Owner Representative and Arcchitect/Engineer during progress of the work:
 1. Compression Tests Cylinders - Strength test shall consist of three cylinders molded and cured. Cast three cylinders for each 50 cubic yards, or fraction thereof, for each class of concrete placed on any one day, but at least three for each day. Test one cylinder at seven days and two at 28 days in accordance with ASTM C39.
 2. Slump Tests - ASTM C143. Slump shall be measured for first batch of each concrete class delivered in morning and afternoon, for each strength test, and whenever consistency of concrete appears to vary.
 3. Air Entrainment - ASTM C173 or C231. Perform one test for every second ready-mix truck load.
 4. Temperature ASTM C1064. Perform with each slump test.
- E. If the measured slump or air content fall outside the specified limits, make an additional test immediately and on each successive batch until the specified requirements are met by two consecutive batches.
- F. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work shall be done at Contractor's expense.
- G. Test Reports:
 1. The testing laboratory shall submit test reports directly to the Contractor, the concrete supplier, and Owner Representative and Arcchitect/Engineer. Reports shall be identified by the project name and number, and the portion of the structure represented. Reports shall include the dates of casting and testing, air and concrete temperatures, specified strength and mix design, actual strength and mix design, slump, air content, and the name of individual making the test.

2. The testing laboratory shall notify the Owner Representative and Architect/Engineer immediately by telephone when a low strength break occurs or specifications are not met.

3.4 FORMWORK

- A. Formwork shall conform to ACI 347R.
- B. Formwork shall be designed to safely support vertical and lateral loads, until such loads can be safely supported by concrete structure. Loads shall be carried to ground by formwork and in-place construction of adequate strength.
- C. Formwork shall be designed for dead and live loads, weight of concrete, wind, construction loads including impact, and other loads which act or might act on formwork.
- D. Formwork shall be designed for pressure of concrete giving due consideration to rate of concrete placement, methods of placement, method of consolidation, concrete mix design, temperature, and other factors pertinent to formwork design.
- E. Forms shall have sufficient strength and rigidity to maintain specified tolerances.
- F. Formwork shall be securely braced and anchored against deflection and displacement.
- G. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood insets shall be used for forming keyways, reglets, recesses, and the like for easy removal.
- H. Form ties shall be adjustable in length to permit tightening of the forms and so made that no metal remains nearer than 1-1/2-inch to the concrete surface after the ends are removed. Spreader devices shall leave holes no greater than 7/8-inch in diameter. Washers or buttons leaving shallow depressions in the surface will not be permitted. Twist type ties may be used only for unexposed concrete.
- I. Provide holes in the form for insertion of vibrators to properly consolidate concrete.
- J. Provide temporary openings for clean-outs and inspections where interior area of formwork is inaccessible before and during concrete placement. Securely brace temporary openings and set tightly to forms to prevent losing concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- K. Chamfer exposed corners and edges using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

- L. The maximum allowable tolerance in either the horizontal or vertical planes shall be 1/4-inch in 10 feet.
- M. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.
- N. Oil temporary forms with non-staining form oil.
- O. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before placing concrete. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.

3.5 DOWELING TO EXISTING STRUCTURE

- A. Dowels shall be embedded into existing concrete where shown on Drawings. Unsound concrete shall be reported to Engineer.
- B. Hole shall be drilled 1/8-inch larger than nominal diameter of reinforcing bar using a rotary percussion hammer and carbide bit. Bar shall be embedded a distance equal to the lap splice length unless shown otherwise.
- C. Hole shall be cleaned of dust and residue by blasting with dry and oil-free compressed air. Air nozzle shall be inserted to bottom of hole.
- D. Standing water and frost shall be removed immediately prior to injecting adhesive.
- E. Adhesive shall be injected from bulk-loading caulking gun, disposable caulking tubes, or pneumatic dispenser. Adhesive shall be injected using extension on nozzle to reach bottom of hole. Adhesive shall be injected to pre-determined depth which will cause hole to be completely filled after bar is inserted. Adhesive shall be mixed in accordance with the manufacturer's instructions.
- F. Bar shall be inserted and slightly rotated to ensure adhesive completely surrounds bar.
- G. Adhesive displaced from hole shall be removed immediately.

3.6 REINFORCEMENT

- A. Place reinforcing to ACI recommended tolerances.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by the Engineer.

- D. Unless shown otherwise in drawings, place reinforcement to maintain minimum coverages conforming to ACI standard practice for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
- E. Welding of reinforcement shall conform to AWS D1.4.
- F. Unless otherwise specified on Drawings, reinforcing steel splices shall be lapped conforming to ACI 318, Class B splices.
- G. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh plus 2-inch and lace splices with 16 gauge wire. Do not make end laps between supporting beams. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.7 INSERTS

- A. Metal inserts such as anchor bolts, sleeves, embedded metals, etc. shall be free of scale, loose rust, oil, grease and other coatings. Remove protective film from cast iron with flame.
- B. Ensure that items are accurately positioned and rigidly supported against displacement before placing concrete.
- C. The location of anchor and foundation bolts must not vary from the dimensions shown on the Contract Drawings by more than the following:
 - 1. 1/8-inch center to center of any two bolts within an anchor bolt group, where such group is defined as the set of anchor bolts which receives a single fabricated steel shipping piece.
 - 2. 1/4-inch center to center of adjacent bolt groups.
- D. Split rib types of waterstops are acceptable at construction joints and isolation (expansion) joints.
- E. Secure waterstops in place by wire ties to hog rings. Hog rings to be installed between last rib and edge and spaced at 12-inch on center.
- F. Field weld joints in waterstops using indirect heating element.

3.8 JOINTS

- A. Joints not shown on Drawings shall be made at locations that will least impair strength of structure, and shall be approved by the Owner Representative and Architect/Engineer prior to construction.
- B. Construction Joints:
 - 1. Keyways at least 1-1/2-inch deep by width, which is equal to 1/3 member thickness, shall be provided in all construction joints in walls, supported slabs, and between walls and foundation systems.
 - 2. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints. Do not continue reinforcement through sides of strip placements.

3. Concrete slabs on grade shall be poured in strip pattern shown on the Drawings.
4. Roughen surfaces of set concrete at all joints. Clean surfaces of laitance, coatings, loose particles, and foreign matter. Roughen surfaces in a manner to expose bonded aggregate uniformly. Apply approved bonding adhesive or cement grout. Bonding cement grout shall be evenly spread and shall consist of one part cement and two parts fine aggregate. Fresh concrete shall be placed before grout or bonding adhesive has obtained initial set. Grout shall be approximately 2-inch thick in walls.

C. Isolation Joints:

1. Unless otherwise shown, provide isolation joints in slabs on grade at all points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, equipment bases and elsewhere as indicated.

D. Expansion Joints:

1. Provide preformed expansion joints as shown on Drawings or otherwise required.
2. Expansion joint material shall be 1/2-inch in thickness, unless otherwise indicated.
3. Concrete edges at expansion joints subject to vehicular traffic shall be tooled to a 1/8-inch radius.
4. When sealed expansion joints are called for on the Drawings, pourable approved joint sealants shall be placed along top edges of expansion joints per manufacturer's instructions.

E. Control Joints for Slabs:

1. Control joints shall be located and constructed as shown on the Drawings.
2. Within 24 hours of finishing concrete, cut joints to a depth of 1/4 slab thickness when it is firm enough to resist raveling, tearing, or dislodging of aggregates.

F. Clean joints thoroughly with compressed air, wire brushing, or sandblasting.

G. Fill joints with specified joint filler.

3.9 CONCRETE SCHEDULES

A. Unless indicated otherwise, concrete shall be furnished as follows:

Class A: Reinforced concrete structures and fill in manholes and chambers.

Class B: Buried pipe, saddles, and cradles, pipe bedding, pipe encasements, and mudmats.

3.10 PLACING CONCRETE

- A. General - Comply with ACI 304, "Guide for Measuring, Mixing, Transporting, and Placing Concrete," and as specified.
- B. Do not place concrete on frozen ground, mud, or debris. Dampen subgrade prior to placing concrete slabs on grade where vapor barrier is not required.
- C. Inspection - Before placing concrete, inspect, and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Where necessary, notify other trades to permit installation of their work.
- D. Convey concrete from the mixer to the place of final deposit by methods which will prevent the loss or separation of the materials:
 - 1. When concrete placing is interrupted for more than 1/2 hour, place a construction joint.
- E. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened sufficiently to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Avoid unplanned cold joints. Alternate equipment shall be immediately available for use in the event that primary placing equipment or system breaks down.
- F. Use internal vibration to consolidate. Size at least one vibrator to work around closely spaced reinforcing. Provide a standby vibrator whenever working less than three vibrators in the pour. All equipment and procedures used to consolidate concrete shall comply with ACI 309R.
- G. Concrete shall be thoroughly consolidated by vibrating, spading, rodding, or forking so that concrete is thoroughly worked around reinforcement and embedded items, and into corners, angles of forms, eliminating air and stone pockets.
- H. Hot Weather
 - Concreting: Follow recommendations of ACI 305R for preparation, placing, protection and curing during hot weather.
- I. Cold Weather
 - Concreting: Follow recommendations of ACI 306R for preparation, placing, protection and curing during cold weather.
- J. Contractor shall keep good thermometer at site for monitoring air or concrete surface temperature.
- K. Where saw cutting and removal of existing concrete walls, slabs, etc. exposes the ends of reinforcing steel bars, the Contractor shall coat the exposed concrete surface with the specified epoxy coating.
 - 1. Prior to application of the epoxy coating, the concrete surface to be coated shall be roughened and cleaned of all loose materials and dust.

2. Epoxy coating shall be waterbased rebar coating agent, moisture insensitive, 3-component, epoxy-modified cementitious product.
 3. Application methods and thickness of coating shall be as recommended by the manufacturer.
- L. Apply the specified bonding agent per the manufacturer's instructions at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
1. Prior to application of the bonding agent, the existing concrete surfaces to be coated shall be roughened and cleaned of all loose materials and dust, thus exposing the aggregate to provide a mechanical bond in addition to the chemical bond provided by the bonding agent.
 2. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

3.11 DEFECTIVE CONCRETE

- A. Defective concrete is defined as concrete in place which does not conform to specified design strength, required percent air, shapes, alignments and elevations, as shown on the Drawings and/or which presents faulty surface areas. Evaluation and acceptance of concrete shall conform to ACI 318, ACI 301, and ACI 350 as applicable.
- B. All defective concrete shall be removed and replaced in a manner meeting with the Engineer's approval, or should surface imperfections only occur, may be patched at the discretion of, and in a manner satisfactory to the Owner Representative and Architect/Engineer; however, permission to patch the Work shall not be considered as a waiver of the Owner Representative and Architect/Engineer's right to require complete removal and replacement of such defective work should the patching fail to satisfactorily restore the required quality and appearance of the Work. All such work shall be performed at the Contractor's expense, without extension of time.
- C. If for any reason, in the opinion of the Owner Representative and Architect/Engineer, the testing of any section of the completed structure is necessary, a superimposed load shall be applied by the Contractor and the test conducted in accordance with the current Building Code at the Contractor's expense irrespective of the results of the tests. In cases where failure is declared, the Owner Representative and Architect/Engineer shall have the authority to order the defective construction removed. All expense of removing such defective construction and substituting new construction, including expense of removing and replacing the work of others, or protecting and repairing the work of others, shall be borne by the Contractor.

3.12 CURING

- A. General - Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather protect concrete from rapid moisture loss before and during finishing operations.
- B. Begin curing after finishing concrete but not before free water has disappeared from concrete surface in accordance with ACI 308 "Standard Practice for Curing Concrete" subject to the requirements specified in the following subsections.
- C. Cure concrete at least five days at concrete temperatures above 70 degree F or at least seven days at concrete temperatures between 50 degree F and 70 degree F. Maintain concrete temperature above 50 degree F during the curing period. Tanks and other liquid retaining structures shall be cured for a minimum of 10 days.
- D. For exposed surfaces, utilize one of the following methods:
 - 1. Membrane Curing Compound - Apply in two coats at right angles to each other upon completion of the work - each one in accordance with the manufacturer's instructions. Compounds must not be used on surfaces when surface treatments, such as tile, additional concrete, paint, liquid hardeners, adhesive coatings are specified unless the compound is known not to interfere with adhesion.
 - 2. Sheet Curing Materials - Place materials upon completion of the finishing work. Lap edges 6 inches and seal to create a moisture barrier that must remain intact for the duration of the curing period.
 - 3. Sprinkling, Soaking, or Ponding - Maintain surfaces continuously wet for the duration of the curing period as described above.
- E. If formed surface is exposed during the curing period, treat the surface as an exposed surface for the remaining duration of the curing period.

3.13 FINISHING SURFACES

- A. Formed Surfaces - Finishing of formed surfaces shall be in accordance with the requirements of Section 5, ACI 301 subject to the following provisions specified herein:
 - 1. Do not remove forms and shoring until the concrete has cured sufficiently to carry its own weight and remain in place without deformation. Remove forms with care to prevent spalling. Reshore concrete carrying superimposed load until the concrete has attained design strength.
 - 2. Inspect honeycombed areas. Replace areas as directed by the Owner Representative and Architect/Engineer.
 - 3. On exposed vertical surfaces as necessary, remove fins and projections, fill holes, and produce smooth-rubbed finish per ACI 301 by wetting and rubbing surfaces with carborundum brick or other abrasive until uniform color and texture are produced.

4. Horizontal surfaces, such as at tops of walls, pedestals, horizontal offsets and similar unformed surfaces occurring adjacent to formed surfaces, shall be struck off smooth and finished with a texture matching the adjacent formed surfaces.
- B. Slabs and Horizontal Surfaces - Finishing of unformed surfaces shall be done in accordance with the requirements of Section 5 of ACI 301 and Chapter 8 of ACI 302:
1. All slabs, whether receiving additional finishes or not, shall receive a float finish when concrete has stiffened sufficiently to permit the operation of a power drive float and all surface water has disappeared. Check and level slab surface to obtain a Class A finishing tolerance per ACI 117.
 2. Interior slabs not receiving finishes shall be given a hard trowel finish to match existing and / or as follows:
 - a. Follow initial finishing with a steel trowel worked flat to produce a fine, non-slip, sandy texture.
 - b. Follow the first steel troweling with a second steel troweling to produce a dense, smooth surface after the surface has become hard enough to give a ringing sound from the trowel.
 - c. Retool joints and edges as required.
 3. Exterior slabs and concrete stair treads shall be given a non-slip broom finish with scored texture perpendicular to main traffic route. Retool joints and edges.
- C. Walkways:
1. Float Finish - Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand-floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance of 1/4-inch in 10-feet as determined by a 10-foot long straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.
 2. Final Tooling - Tool edges of paving and joints formed in fresh concrete with a jointing tool to a radius of 1/4-inch Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces.
- D. Tanks and Other Liquid Retaining Structures: Finishing for exposed surface shall be in accordance with the requirements of ACI 350, ACI 301 and ACI 302 subject to the following requirements:
1. Slabs - Floated finish.
 2. Interior Formed Surfaces - Grout-cleaned finish.

3. Exterior Formed Surfaces - Grout-cleaned finish to 6 inches below grade.
4. Other Formed Surfaces - As-cast finish.

3.14 REMOVING FORMS

- A. General - Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after curing at not less than 50 degree F for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form-removal operations, and provided curing and protection operations are maintained.
- B. Formwork supporting weight of concrete, such as beam soffits, joists, slabs, and other structural elements, may not be removed in less than 14 days or until concrete has attained at least 80 percent of design minimum compressive strength at 28 days. Determine potential compressive strength of in-place concrete by testing field-cured specimen's representative of concrete location or members. Construction loads shall not exceed 80 percent of design live load until 28 days after concrete placement.
- C. Form-facing material may be removed four days after placement only if shores and other vertical supports have been arranged to permit removal of form-facing material without loosening or disturbing shores and supports.

3.15 REUSING FORMS

- A. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.
- B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces except as acceptable to the Engineer.

3.16 CONCRETE REPAIRS AND REPLACEMENT

- A. Remove and replace, at Contractor's expense, any concrete that was part of the work and that is broken, damaged, or defective, or does not meet the requirements of this Section.
- B. Protect concrete from damage. Exclude traffic from slabs-on-grade and roadway/walkway paving for at least 14 days after placement. When construction traffic is permitted, maintain slabs and paving as clean as possible by removing surface stains and spillage of materials as they occur.
- C. Patching Defective Areas - Repair and patch defective areas with cement mortar immediately after removing forms, when acceptable to the Engineer.
- D. Mix dry-pack mortar, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.

1. Cut out honeycombs, rock pockets, voids over 1/4-inch in any dimension, and holes left by tie rods and bolts down to solid concrete but in no case to a depth less than 1-inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush-coat the area to be patched with bonding agent. Place patching mortar before bonding agent has dried.
 2. For surfaces exposed to view, blend white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Provide test areas at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.
- E. Repaired Formed Surfaces - Remove and replace concrete having defective surfaces if defects cannot be repaired to the satisfaction of the Engineer. Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes and fill with dry-pack mortar or precast cement cone plugs secured in place with bonding agent.
1. Repair concealed formed surfaces containing defects that affect the concrete's durability. If defects cannot be repaired, remove and replace the concrete.
- F. Repairing Unformed Surfaces - The Contractor shall test unformed surfaces such as monolithic slabs, for smoothness and verify surface tolerances specified for each surface and finish. Correct low and high areas as specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having the required slope.
1. Repair finished unformed surfaces containing defects that affect the concrete's durability. Surface defects include crazing and cracks in excess of 0.01-inch wide or that penetrate to the reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
 2. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.
 3. Correct low areas in unformed surfaces during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.

4. Repair defective areas, except random cracks and single holes not exceeding 1-inch in diameter by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
- G. Repair isolated random cracks and single holes 1-inch or less in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Place dry-pack before bonding agent has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

END OF SECTION

SECTION 03 32 00

CONCRETE REINFORCEMENT

1. PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Wire fabric and accessories for cast-in-place concrete.

1.2 REFERENCES

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 318 - Building Code Requirements For Reinforced Concrete.
- C. ACI SP-66 - American Concrete Institute - Detailing Manual.
- D. ANSI/ASTM A82 - Cold Drawn Steel Wire for Concrete Reinforcement.
- E. ANSI/ASTM A184 - Fabricated Deformed Steel Bar Mats for Concrete Reinforcement.
- F. ANSI/ASTM A185 - Welded Steel Wire Fabric for Concrete Reinforcement.
- G. ANSI/ASTM A496 - Deformed Steel Wire Fabric for Concrete Reinforcement.
- H. ANSI/ASTM A497 - Welded Deformed Steel Wire Fabric for Concrete Reinforcement.
- I. ANSI/AWS D1.4 - Structural Welding Code for Reinforcing Steel.
- J. ANSI/AWS D12.1 - Reinforcing Steel Welding Code.
- K. ASTM A704 - Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.
- L. AWS D12.1 - Welding Reinforcement Steel, Metal Inserts and Connections in Reinforced Concrete Construction.
- M. CRSI - Concrete Reinforcing Steel Institute Manual of Practice.
- N. CRSI 63 - Recommended Practice For Placing Reinforcing Bars.
- O. CRSI 65 - Recommended Practice For Placing Bar Supports, Specifications and Nomenclature.

1.3 SUBMITTALS

- A. Submit under provisions of Section 1.
- B. Shop Drawings: Indicate spacings, locations, and quantities of wire fabric, bending and cutting schedules, and supporting and spacing devices.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with CRSI Manual of Practice and ACI 301.

1.5 QUALIFICATIONS

- A. Design reinforcement under direct supervision of a Professional Structural Engineer experienced in design of this work and licensed at the place where the Project is located.

1.6 COORDINATION

- A. Coordinate with placement of formwork, formed openings and other Work.

2. PART 2 PRODUCTS

2.1 REINFORCEMENT

- A. Welded Steel Wire Fabric: ASTM A185 Plain Type; in flat sheets or coiled rolls; plain finish.
- B. Synthetic Fiber: Monofilament polypropylene fibers engineered and designed for use in exterior concrete pavement, complying with ASTM C 1116, Type III, 1/2 to 1-1/2 inches (13 to 38 mm) long.

2.2 ACCESSORY MATERIALS

- A. Tie Wire: Minimum 16 gage annealed type.
- B. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for strength and support of reinforcement during concrete placement conditions including load bearing pad on bottom to prevent vapor barrier puncture.

2.3 FABRICATION

- A. Fabricate concrete reinforcing in accordance with CRSI Manual of Practice.

- B. Weld reinforcement in accordance with ANSI/AWS D1.4, ANSI/AWS D12.1.
- C. Locate reinforcing splices not indicated on Drawings, at point of minimum stress. Review location of splices with Project Architect.

3. PART 3 EXECUTION

3.1 PLACEMENT

- A. Place, support and secure reinforcement against displacement. Do not deviate from required position.
- B. Do not displace or damage vapor barrier.
- C. Accommodate placement of formed openings.
- D. Maintain concrete cover around reinforcing as follows:

3.2 SCHEDULE

Structural Element & Condition	Minimum cover, inches
Concrete cast against And permanently exposed to earth.	3
Concrete exposed to earth or weather:	
#6 through #18 bars	2
#5 bar, W31 or D31 wire and smaller	1 ½
Concrete not exposed to weather or in contact With ground slabs, walls, joists:	
#14 and #18 bars	1 ½
#11 bar and smaller	¾
Beams, columns:	
Primary reinforcement, ties, stirrups, spirals	1 ½

END OF SECTION

SECTION 05 52 13

PIPE AND TUBE RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Steel pipe and tube railings.
 - 2. Aluminum pipe and tube railings.
- B. Related Requirements:

1.2 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Manufacturer's product lines of mechanically connected railings.
 - 2. Railing brackets.
 - 3. Grout, anchoring cement, and paint products.
- B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples: For each type of exposed finish required.
- D. Delegated-Design Submittal: For railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS

- A. Product Test Reports: For pipe and tube railings, for tests performed by a qualified testing agency, according to ASTM E 894 and ASTM E 935.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Steel Pipe and Tube Railings:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Wagner, R & B, Inc.

- B. Aluminum Pipe and Tube Railings:
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - a. Blum, Julius & Co., Inc.
 - b. Braun, J. G., Company; The Wagner Companies.
 - c. Thompson Fabricating, LLC.
 - d. Tubular Specialties Manufacturing, Inc.
 - e. Wagner, R & B, Inc.

2.2 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design railings, including attachment to building construction.
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
 - 1. Handrails and Top Rails of Guards:
 - a. Uniform load of 50 lbf/ ft. applied in any direction.
 - b. Concentrated load of 200 lbf applied in any direction.
 - c. Uniform and concentrated loads need not be assumed to act concurrently.
 - 2. Infill of Guards:
 - a. Concentrated load of 50 lbf applied horizontally on an area of 1 sq. ft.
 - b. Infill load and other loads need not be assumed to act concurrently.

2.3 METALS, GENERAL

- A. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
 - 1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch clearance from inside face of handrail to finished wall surface.

2.4 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed) or ASTM A 513].
- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
 - 1. Provide galvanized finish for exterior installations and where indicated.

- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.
- D. Cast Iron: Either gray iron, ASTM A 48/A 48M, or malleable iron, ASTM A 47/A 47M, unless otherwise indicated.
- E. Expanded Metal: ASTM F 1267, Class 1 (uncoated).
 - 1. Style Designation: 1-1/2 number 10.
 - 2. Basis-of-Design Product: Provide product with perforations matching product indicated on Drawings.
- F. Woven-Wire Mesh: Intermediate-crimp, square pattern, 2-inch woven-wire mesh, made from 0.134-inch diameter wire complying with ASTM A 510.

2.5 ALUMINUM

- A. Aluminum, General: Provide alloy and temper recommended by aluminum producer and finisher for type of use and finish indicated, and with not less than the strength and durability properties of alloy and temper designated below for each aluminum form required.
- B. Extruded Bars and Tubing: ASTM B 221, Alloy 6063-T5/T52.
- C. Extruded Structural Pipe and Round Tubing: ASTM B 429/B 429M, Alloy 6063-T6.
- D. Drawn Seamless Tubing: ASTM B 210, Alloy 6063-T832.
- E. Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- F. Die and Hand Forgings: ASTM B 247, Alloy 6061-T6.
- G. Castings: ASTM B 26/B 26M, Alloy A356.0-T6.
- H. Woven-Wire Mesh: Intermediate-crimp, square pattern, 2-inch woven-wire mesh, made from 0.162-inch-diameter wire complying with ASTM B 211, Alloy 6061-T94.

2.6 FASTENERS

- A. General: Provide the following:
 - 1. Ungalvanized-Steel Railings: Plated steel fasteners complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5 for zinc coating.
 - 2. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
 - 3. Aluminum Railings: Type 304 stainless-steel fasteners.

- B. Post-Installed Anchors: Torque-controlled expansion anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
 - 1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, unless otherwise indicated.
 - 2. Material for Exterior Locations and Where Stainless Steel Is Indicated: Alloy Group 1 (A1) stainless-steel bolts, ASTM F 593 (ASTM F 738M), and nuts, ASTM F 594 (ASTM F 836M).

2.7 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Shop Primers: Provide primers that comply with Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- E. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.
- F. Epoxy Zinc-Rich Primer: Complying with MPI#20 and compatible with topcoat.
- G. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- H. Epoxy Intermediate Coat: Complying with MPI #77 and compatible with primer and topcoat.
- I. Polyurethane Topcoat: Complying with MPI #72 and compatible with undercoat.
- J. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.
- K. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.

2.8 FABRICATION

- A. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch (1 mm) unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- B. Form work true to line and level with accurate angles and surfaces.
- C. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove flux immediately.
 - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- D. Welded Connections for Aluminum Pipe: Fabricate railings to interconnect members with concealed internal welds that eliminate surface grinding, using manufacturer's standard system of sleeve and socket fittings.
- E. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
- F. Form changes in direction by bending or by inserting prefabricated elbow fittings.
- G. For changes in direction made by bending, use jigs to produce uniform curvature for each repetitive configuration required. Maintain cross section of member throughout entire bend without buckling, twisting, cracking, or otherwise deforming exposed surfaces of components.
- H. Close exposed ends of railing members with prefabricated end fittings.
- I. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated.
- J. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
 - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.

- K. Expanded-Metal Infill Panels: Fabricate infill panels from expanded metal made from same metal as railings in which they are installed.
 - 1. Orient expanded metal with long dimension of diamonds horizontal.
 - 2. Orient wire mesh with wires horizontal and vertical.

2.9 STEEL AND IRON FINISHES

- A. Galvanized Railings:
 - 1. Hot-dip galvanize exterior steel railings, including hardware, after fabrication.
 - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
 - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
- B. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.
- C. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."
- D. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.
 - 1. Do not apply primer to galvanized surfaces.
- E. High-Performance Coating: Apply epoxy intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.
 - 1. Color: As selected by Architect from manufacturer's full range.

2.10 ALUMINUM FINISHES

- A. Appearance of Finished Work: Variations in appearance of abutting or adjacent pieces are acceptable if they are within one-half of the range of approved Samples. Noticeable variations in the same piece are unacceptable. Variations in appearance of other components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.
- B. Clear Anodic Finish: AAMA 611, AA-M12C22A41.
- C. Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils (0.04 mm). Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

1. Color and Gloss: As selected by Architect from manufacturer's full range.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
 1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (6 mm in 3.5 m).
- B. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
 1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.

3.2 ANCHORING POSTS

- A. Use metal sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- C. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members.

3.3 ATTACHING RAILINGS

- A. Attach railings to wall with wall brackets, except where end flanges are used. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.

- B. Secure wall brackets and railing end flanges to building construction as follows:
 - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.
 - 2. For hollow masonry anchorage, use toggle bolts.
 - 3. For wood stud partitions, use hanger or lag bolts set into studs or wood backing between studs. Coordinate with carpentry work to locate backing members.
 - 4. For steel-framed partitions, use hanger or lag bolts set into wood backing between studs. Coordinate with stud installation to locate backing members.
 - 5. For steel-framed partitions, use self-tapping screws fastened to steel framing or to concealed steel reinforcements.
 - 6. For steel-framed partitions, use toggle bolts installed through flanges of steel framing or through concealed steel reinforcements.

3.4 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
- B. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

END OF SECTION

