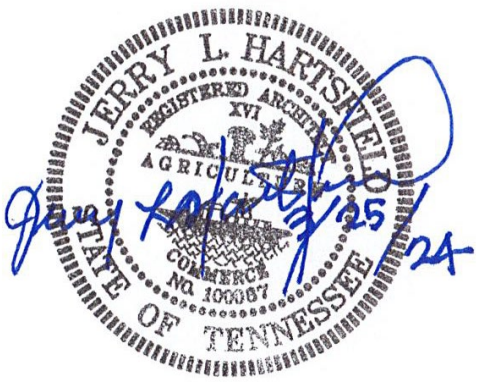
SPECIFICATION MANUAL

TLM Project No. J-7134
Issue Date: March 25, 2024

Lawrenceburg Square Pavilion – Phase 2
General Contractor

for

City of Lawrenceburg



117 East Lafayette Street
Jackson, TN 38301
Phone: 731-988-9840
www.tlmae.com

DIVISION 0

CONTRACT DOCUMENTS

Lawrence County Government
Office of Accounts & Budgets
700 Mahr Avenue
Lawrenceburg, TN 38464
Phone: 931-766-4193 Fax: 931-244-6153
lawrencecountytn.gov

LAWRENCE COUNTY, TENNESSEE

Invitation to Bid

For

Bid No. 041124-01

Lawrenceburg Square Pavilion – Phase 2
General Contractor

BID Opening
April 11, 2024
4:30 pm CST

Lawrence County Government will receive sealed bids for Lawrenceburg Square Pavilion Steel Construction. Bids must be received by 12:00 p.m. on April 11, 2024. Late bids will neither be considered nor returned. Bids will be publicly opened noon April 11, 2024, at 4:30 CST in the 2nd Floor Conference Room of the Lawrence County Administrative Center, located at 200 West Gaines Street, Lawrenceburg, TN 38464.

Please Deliver Sealed Bids to:

Bid# 041124-01
Lawrence County Office of Accounts & Budgets
700 Mahr Avenue
Lawrenceburg, Tennessee 38464

The Envelope must show the Bid#, Name and Closing Date.

SECTION I GENERAL TERMS AND CONDITIONS

1. **ADDITIONAL INFORMATION:** Lawrence County wants requests for additional information routed to Kelly Odom at 931-766-4198. Questions must be emailed to kodom@lawcotn.org.

2. **ACCEPTANCE:** Respondents shall hold their price firm and subject to acceptance by Lawrence County for a period of ninety (90) days from the date of the bid opening, unless otherwise indicated in their bid.

3. **ALTERNATIVE BIDS:** Lawrence County will not accept alternate bids (those not equal to specifications) unless authorized by the Invitation for Bids.

4. **AWARD:** Award will be made to the most responsive, responsible bidder(s) meeting specifications, who presents the product or service that is in the best interest of Lawrence County. Lawrence County reserves the right to award this bid on a location basis, zone basis, item-by-item basis, an all or none basis, or by multiple awards, whichever is in the best interest of the County. Lawrence County reserves the right to not award this bid. Award will be made in accordance with the evaluation criteria specified herein.

5. **BID DELIVERY:** Lawrence County requires all bids to be time date and stamp the envelope upon delivery to the Office of Accounts and Budgets. Lawrence County will not be responsible for any lost or misdirected mail sent by common carrier. Lawrence County shall also not be responsible for bids delivered to other addresses other than the one listed at the top of this solicitation. The time clock in the Office of Accounts and Budgets shall serve as the official record of time.

6. **CONFLICT OF INTEREST:** Vendors must have read and complied with the “non-conflict of interest” statement provided in the vendor registration process prior to the opening of this solicitation.

7. **COPIES:** Lawrence County requires that bids be submitted as one (1) marked original and seven (7) exact copies.

8. **DECLARATIVE STATEMENTS:** Any statements or words (i.e.: must, shall, will etc.) are declarative statements and the vendor must comply with the condition. Failure to comply with any such condition may result in their bid being non-responsive and disqualified.

9. **ELECTRONIC TRANSMISSION OF QUALIFICATIONS:** Lawrence County Government **will not** accept electronically transmitted responses. Facsimile submission is strictly prohibited. All responses must be mailed or delivered by hand.

10. **INCURRED COSTS:** Lawrence County will not be responsible for any costs incurred by the bidder in the preparation of their bid.

11. **NON-COLLUSION:** Bidders, by submitting a signed bid, certify that the accompanying bid is not the result of, or affected by, any unlawful act of collusion with any other person or company engaged in the same line of business or commerce, or any other fraudulent act punishable under Tennessee or United States law.

12. **PROCESSING TIME FOR PAYMENT:** Vendors are advised that a minimum of thirty (30) days is required to process invoices for payment.

13. **RESTRICTIVE OR AMBIGUOUS SPECIFICATIONS:** It is the responsibility of the prospective bidder to review the entire Invitation for Bid (IFB) packet and to notify the Purchasing Agent if the specifications are formulated in a manner that would unnecessarily restrict competition. Any such protest or question regarding the specifications or bidding procedures must be received by April 10, 2024 @ 2:00 p.m. local time. These requirements also apply to specifications that are ambiguous.

14. **SIGNING OF BIDS:** In order to be considered all bids must be signed. Please sign the original in **blue ink**. By signing the bid document, the bidder acknowledges and accepts the terms and conditions stated in the document.

15. **TAXES:** Lawrence County purchases are not subject to taxation. Tax exemption certificates will be provided upon request.

16. **TITLE VI OF THE 1964 CIVIL RIGHTS ACT:** "Nondiscrimination in Federally Assisted Programs" – "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." 42 U.S.C. section 2000 et seq. It is the policy of Lawrence County Government that all its services and activities be administered in conformance with the requirements of Title VI.

17. **USE OF BID FORMS:** Vendors must complete the bid forms contained in the bid package. Failure to complete the bid forms may result in bid rejection.

18. **WAIVING OF INFORMALITIES:** Lawrence County reserves the right to waive minor informalities or technicalities when it is in the best interest of Lawrence County.

SECTION II OBLIGATIONS, RIGHTS AND REMEDIES

These terms and conditions shall be part of the Contract. Lawrence County reserves the right to negotiate other terms and conditions it deems appropriate and necessary under the circumstances to protect the public's trust.

1. **ALTERATIONS OR AMENDMENTS:** No alterations, amendments, changes, modifications, or additions to this Contract shall be binding on Lawrence County without prior written approval of the County.

2. **APPROPRIATION:** In the event no funds are appropriated by Lawrence County for the goods or services in any fiscal year, or insufficient funds exist to purchase the goods or services, then the Contract shall expire upon the expenditure of previously appropriated funds or the end of the current fiscal year, whichever occurs first, with no further obligations owed to or by either party.

3. **ASSIGNMENT:** Contractor shall not assign or sub-contract this agreement, its obligations, or rights hereunder to any party, company, partnership, incorporation or person without prior written specific consent of Lawrence County.

4. **BOOKS AND RECORDS:** Contractor shall maintain all books, documents, accounting records and other evidence pertaining to the goods and services provided under this Contract and make such materials available at is offices at all reasonable times during the Contract period and for three (3) years from the date of the final payment under this agreement for inspection by County or by any other governmental entity or agency participating in the funding of this agreement, or any authorized agents thereof; copies of said records to be furnished if requested. Such records shall not include those books, documents and accounting records that represent the Contractor's costs of manufacturing, acquiring, or delivering the products and services governed by this agreement.

5. **CHILD LABOR:** Contractor agrees that no products or services will be provided or performed under this Contract which have been manufactured or assembled by child labor.

6. **COMPLIANCE WITH ALL LAWS:** Contractor is assumed to be familiar with and agrees to observe and comply with all Federal, State, and local laws, statutes, ordinances, and regulations in any manner affecting the provision of goods and/or services, and all instructions and prohibitive orders issued regarding this work shall obtain all necessary permits.

7. **DEFAULT:** If the Contractor fails to perform or comply with any provision of this Contract or the terms or conditions of any documents referenced and made a part hereof, Lawrence County may terminate this Contract, in whole or in part, and may consider such failure or noncompliance a breach of contract. Lawrence County expressly retains all its rights and remedies provided by law in case of such breach; and no action by Lawrence County shall constitute a waiver of any such rights or remedies. In the event of termination for default, Lawrence County reserves the right to purchase its requirements elsewhere, with or without competitive bidding.

8. **GOVERNING LAW:** The laws of the State of Tennessee shall govern this Contract, and all obligations of the parties are performable in Lawrence County, Tennessee. The Chancery Court and/or the Circuit Court of Lawrence County, Tennessee, shall have exclusive and concurrent jurisdiction of any disputes, which arise hereunder.

9. **INCORPORATION:** All specifications, drawings, technical information, Invitation for Bids, Bid Award and similar items referred to or attached or which are the basis for this Contract are deemed incorporated by reference as if set out fully herein.

10. **INDEMNIFICATION-HOLD HARMLESS**: Contractor shall indemnify, defend, save and hold harmless Lawrence County its officers, agents and employees from all suits, claims, actions or damages of any nature brought because of, arising out of, or due to breach of the agreement by Contractor, its subcontractors, suppliers, agents, or employees or due to any negligent act or occurrence or any omission or commission of Contractor, its subcontractors, suppliers, agents or employees.

11. **INDEPENDENT CONTRACTOR:** Contractor shall acknowledge that it and its employees serve as independent contractors and that Lawrence County shall not be responsible for any payment, insurance or incurred liability.

12. **INSPECTION AND ACCEPTANCE:** Warranty periods shall not commence until Lawrence County inspects and formally accepts the goods and/or services. The terms, conditions and timing of acceptance shall be determined by Lawrence County. Lawrence County reserves the right to reject any or all items or services not in conformance with applicable specifications, and Contractor assumes the costs associated with such nonconformance. Acceptance of goods or service does not constitute a waiver of latent or hidden defects or defects not readily detectable by a reasonable person under the circumstances.

13. **INVOICES AND PAYMENT:** Invoices are to be submitted to:

    Lawrence County Office of Accounts and Budgets
    Attn: Kelly Odom, Purchasing Agent
    700 Mahr Avenue, Lawrenceburg, TN 38464.

    Invoices may also be emailed to: invoices@lawcotn.org.

14. **IRAN DIVESTMENT ACT:** By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and in the case of a joint bid each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each bidder is not on the list created pursuant to Tennessee Code Annotated § 12-12-106.

15. **LIMITATIONS OF LIABILITY:** In no event shall Lawrence County be liable for any indirect, incidental, consequential, special, or exemplary damages or lost profits, even if Lawrence County has been advised of the possibility of such damages.

16. **NON-BOYCOTT OF ISRAEL:** The Contractor certifies that it is not currently engaged in and will not for the duration of the contract engage in, a boycott of Israel as defined by Tenn. Code Ann.

§ 12-4-119. This provision shall not apply to contracts with a total value of less than two hundred fifty thousand dollars ($250,000) or to contractors with less than ten (10) employees.

17. **NON-DISCRIMINATION AND NON-CONFLICT STATEMENT:** Contractor agrees that no person on the grounds of handicap, age, race, color, religion, sex, or national origin, shall be excluded from participation in, or be denied benefits of, or be otherwise subjected to discrimination in the performance of this agreement, or in the employment practices of vendor. Contractor shall upon request show proof of such non-discrimination and shall post in conspicuous places available to all employees and applicants notices of non-discrimination. Contractor covenants that it complies with the Fair Wage and Hour Laws, the National Labor Relations Act, and other federal and state employment laws as applicable. Contractor covenants that it does not engage in any illegal employment practices.

    Contractor covenants that it has no public or private interest, and shall not acquire directly or indirectly any interest, which would conflict in any manner with the provision of its goods or performance of its services. Contractor warrants that no part of the total contract amount provided herein shall be paid directly or indirectly to any officer or employee of Lawrence County as wages, compensation, or gifts in exchange for acting as officer, agent, employee, sub-contractor or consultant to Contractor in connection with any goods provided or work contemplated or performed relative to the agreement.

18. **REMEDIES:** Lawrence County shall have all rights and remedies afforded under the U.C.C. and Tennessee law in Contract and in tort, including but not limited to rejection of goods, rescission, and right of set-off, refund, incidental, consequential, and compensatory damages, and reasonable attorney's fees.

19. **RIGHT TO INSPECT:** Lawrence County reserves the right to make periodic inspections of the manner and means the service is performed or the goods are supplied and warehoused.

20. **SEVERABILITY**: If any provision of this Contract is declared illegal, void or unenforceable, the remaining provisions shall not be affected but shall remain in force and in effect.

21. **TAX COMPLIANCE:** Contractor hereby acknowledges, by submission of its bid and signature, it is current in its respective Federal, State, County, and City taxes of whatever kind or nature, and is not delinquent in any way. Delinquent status must be disclosed or risk debarment by the Lawrence County Purchasing Department.

22. **TERMINATION:** County may terminate this agreement with or without cause at any time. In the event of termination by either party, fees due for services satisfactorily performed or goods accepted prior to the termination date shall be paid.

23. **WARRANTY:** Contractor warrants to Lawrence County that all items delivered and all services rendered shall conform to the specifications, drawings, bid and/or other descriptions furnished and/or incorporated by reference, and will be fit for the particular purpose purchased of merchantable quality, good workmanship, and free from defects. Contractor extends to Lawrence County all warranties allowed under the U.C.C. Contractor shall provide copies of warranties to the County upon request. Return of merchandise not meeting warranties shall be at contractor's expense.

SECTION III SPECIAL TERMS AND CONDITIONS

1. **ACCEPTANCE:** Bidders are advised that the payment of an invoice does not necessarily constitute as an acceptance of services that are provided. Acceptance requires a specific written action by Lawrence County so stating.

2. **ADDENDUM**

   If it becomes necessary to revise any part of this invitation to bid or if additional information is necessary to enable an exact interpretation of the provision of this invitation to bid, an addendum will be issued to all vendors known to have received a bid packet. It is the responsibility of the bidder to ensure that he/she has received and signed all addendums prior to submitting a bid. No oral explanation or instruction of any kind or nature whatsoever given before the award of a contract to a bidder shall be binding.

3. **BIDDER OBLIGATION:** Each bidder shall become fully acquainted with conditions relating to the scope and restrictions attending the execution of the work under this IFB. The failure or omission of a bidder to become acquainted with existing conditions shall no way relieve the bidder of any obligations with respect to this IFB or to the Contract.

4. **BID EVALUATION:** In evaluating the bids, Lawrence County reserves the right to use any or all of the ideas from the bids submitted without limitation and to accept any part or all of the successful bid in selecting an operation which is judged to be in the best interest of Lawrence County. All material submitted becomes the property of Lawrence County.

5. **BIDS REQUESTED ON BRANDS OR EQUAL:** Unit price bids are requested on products that equal or exceed the quality and performance and model numbers listed. References to brand names, trade names, model numbers or other descriptions of specific brand products are made to establish a required level of quality and functional capabilities and are not intended to exclude other products of that level. Comparable products of other manufacturers will be considered if proof of comparability is contained in the bid. It shall be the responsibility of the bidders, including bidders whose product is referenced to furnish with the bid such specifications, catalog pages, brochures or other data as will provide an adequate basis for determining the quality and functional capabilities of the product offered. Failure to provide this data may be considered valid justification for rejection of a bid.

6. **EVALUATION REVIEW:** Lawrence County reserves the right to use all pertinent information that might affect the County's judgment as to the appropriateness of an award to the best evaluated bidder. This information may be appended to the bid evaluation process results. Information on a service provider from reliable sources, and not within the service provider's bid, may also be noted and made part of the evaluation file. Lawrence County shall have sole responsibility for determining a reliable source. Lawrence County reserves the right to conduct written and/or oral discussions/interviews after the bid opening. The purpose of such discussions/interviews is to provide clarification and/or additional information to make an award that is in the best interest of Lawrence County.

7. **INCLEMENT WEATHER:** During periods of inclement weather in Lawrence County, the Purchasing Department will enact the following procedures in regards to solicitations and weather delays.

    - If the County Executive closes the Administrative Offices prior to the time set for solicitation opening of any business day, all solicitations due that same day will be moved to the next operational business day.

    - Other weather issues shall be at the sole discretion of the County Executive.

    - Lawrence County shall not be liable for any commercial carrier's decision regarding deliveries during inclement weather.

8. **NEW MATERIAL:** Unless specified otherwise in the bid package, the bidder must provide new equipment. New, as used in this clause, means previously unused materials. Material includes but is not limited to, raw material, parts, items, components, and end products. Bidders' submission of other than new materials may be cause for the rejection of their bid.

9. **NEWS RELEASES BY VENDORS:** As a matter of policy, Lawrence County does not endorse the services of a Contractor. A Contractor will not make news releases concerning any resultant Contract from this solicitation without the prior written approval of Lawrence County.

10. **NO CONTACT POLICY:** After the date and time that the vendor receives this solicitation, any contact initiated by any bidder with any Lawrence County representative, other than the Purchasing Agent listed herein, concerning this Invitation for Bid, is strictly prohibited. Any such unauthorized contact may cause the disqualification of the bidder from this procurement transaction.

11. **SUBMIT QUESTIONS:** Prospective bidders may submit questions concerning this solicitation until **2:00 p.m. local time** o**n March 31, 2024**. Submit questions as noted in Section I, 1.

SECTION IV SPECIFICATIONS

Please see attached steel engineered drawings and spec sheet supplied by Architect, Jerry Hartsfield.

SECTION V INSURANCE

EVIDENCE OF INSURANCE

The Contractor shall maintain in full force and effect Employer's Liability, Workmen's Compensation, Comprehensive and General Public Liability Insurance, Property Damage Insurance, Comprehensive Auto Liability Bodily Injury and Comprehensive Auto Liability Property Damage Insurance.

Type Coverage	Per Occurrence Minimum	Aggregate Minimum
Workers Compensation	As required by law and shall cover all employees	As required by law
Comprehensive & General Public Liability	$1,000,000	$1,000,000
Property Damage	$1,000,000	$1,000,000
Comprehensive Auto Liability Bodily Injury	$1,000,000	
Comprehensive Auto Liability Property Damage	$500,000	
Excess Umbrella	$2,000,000	

NOTE: Contractor shall stipulate any limits lower than those listed.

The Contractor shall upon the full execution of agreement and thereafter upon request, furnish the County evidence that the insurance relative to its said acts or omissions is in force, provided, however, any certificate of insurance shall in no way alter or amend such insurance coverage to increase the level or extend expressly set forth herein.

All policies shall name Lawrence County as additional insured. This coverage shall be reflected on the Certificates of Insurance, which will be provided to the County with any endorsements or riders thereto. Each Certificate of Insurance shall require that notice be given thirty (30) days prior to cancellation of material change in the policies to the County.

The Contractor shall either (1) require his subcontractors to procure and to maintain during the life of the subcontract subcontractor's insurance of the type and in the same amounts as specified in the preceding schedule; or (2) insure the activities of subcontractors in Contractor's policy.

BOND

For each year of the contract, Contractor shall furnish to the County a corporate surety bond as security for performance and covenants and conditions contained in the agreement. The said surety bond shall be in the amount of $1,000,000. Premiums for said bond shall be paid by the Contractor. The surety on the bond shall be a duly authorized corporate surety company authorized to do business in the State of Tennessee, and the attorneys in fact who execute said surety bond must file with the bond a certification and effectively dated copy of their Power of Attorney.

INDEMNIFICATION

The Contractor will indemnify and save harmless Lawrence County, its officers, agents, servants, and employees from and against any and all suits, actions, legal proceedings, claims, demands, damages, costs, expenses, and attorney's fees to the extent resulting from a willful or negligent act or omission of the Contractor, its officers, agents, servants, and employees in the performance of this contract; provided, however that the Contractor shall not be liable for any suits, actions, legal proceedings, claims, demands, damages, costs, expenses, and attorney's fees arising out of the award of the Contract or a willful or negligent act or omission of Lawrence County, its officers, agents, servants, and employees.

COMMUNICATION WITH LAWRENCE COUNTY DURING BID PROCESS

Communication with Lawrence County during the bid process shall be with the below listed individual unless otherwise directed:

Lawrence County Office of Accounts and Budgets
Attn: Kelly Odom - Purchasing Agent
700 Mahr Avenue, Lawrenceburg, TN 38464
Email: kodom@lawcotn.org

Scope of services, specifications and requirements for this project may be reviewed at: www.lawrencecountytn.gov or by contacting Purchasing Agent, Kelly Odom at kodom@lawcotn.org.

To ensure accuracy, all communication with Lawrence County should be via email.

BID SCHEDULE

3/27/24		BID ISSUED
4/10/24	2:00 PM CST	Deadline to Submit Questions
4/11/24	12:00 PM CST	Deadline to Submit Bids
4/11/24	4:30 PM CST	Bid Opening

BID AWARD: Bids will be received until Thursday, April 11, 2024 at 12:00 pm CST. The Bids will then be presented to the Lawrence County Purchasing Committee, on Thursday, April 11, 2024 at 4:30 pm CST to be publicly opened and read aloud. Bids will then be evaluated by the Lawrence County Purchasing Committee, and Kelly Odom, Lawrence County Purchasing Agent.

SECTION V BID FORMAT

PART I **COVER LETTER**

Bidders must provide a cover letter authorizing the submission of the Bid signed by a principal of the company.

PART II **BIDDERS INFORMATION**

Name of Company, Address, Telephone Number, Fax Number, Contact Person, E-mail Address of Contact Person, Lawrence County Vendor Number, Copy of Lawrence County Business License (if applicable), State of Tennessee Sales Tax Number (if applicable), Federal Tax Identification Number (EIN), Acknowledgement of Addenda (if applicable)

PART III **EXPERIENCE OF ENTITY**

Experience of the Firm
Experience of the Individuals Performing the Services
Capacity to Deliver the Required Services
Administrative Capacity with Resumes of key individuals and their Roles

PART IV **MINIMUM REQUIREMENTS**

Address how the firm will provide the Minimum Requirements as stated in Section III – Terms and Conditions.

PART V **LICENSES, AFFIDAVITS and INSURANCE**

Bidders much include copies of all Licenses required to perform the work as mentioned both as to individuals working on the project and the firm as a whole (if applicable). Additionally, include the attached Affidavits and Insurance Requirements.

ATTACHMENT A

NONCOLLUSION AFFIDAVIT

State of _____

County of _____

_____, being first duly sworn, deposes and says that:
(printed name of person signing Affidavit)

1. He/She is the _____ of
(Owner or Authorized Partner, Officer, Representative or Agent of Owner)

_____,
(legal name of entity submitting bid or proposal)

the Offeror that has submitted the attached Qualification;

2. He/She is fully informed respecting the preparation and contents of the attached Submittal and of all pertinent circumstances respecting such Qualification;

3. Such Submittal is genuine and is not a collusive or sham Submittal;

4. Neither the said Offeror nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly with any other Offeror, firm or person to submit a collusive or sham Submittal in connection with the Contract for which the attached Submittal has been submitted or to refrain from submitting in connection with such Contract, or has in any manner, directly or indirectly, sought by agreement or collusion or communication or conference with any other Offeror, firm or person to fix the price or prices in the attached Submittal or of any other Offeror, or to secure through any other Offeror, or to fix any overhead, profit or cost element of the submittal or other submittal, or to secure through any collusion, conspiracy, connivance or unlawful agreement any advantage against Lawrence County, TN or any person interested in the proposed contract: and

_____ _____
(Signature of Affiant) (title of Affiant)

ATTACHMENT B

AFFIDAVIT OF COMPLIANCE WITH

IRAN DIVESTMENT ACT

TENNESSEE CODE ANNOTATED, SECTION 12-12-106

Comes, _____, president or other principal Officer for and

on behalf of _____, (the "Company") and, after being duly authorized by the Company so to do, makes oath that:

By submission of this solicitation, each person signing on behalf of any offeror certifies, and in the case of a joint partnership, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief that each offeror is not on the list created pursuant to the Iran Divestment Act, Tenn. Code Ann. § 12-12-106.

_____ _____
(Signature of Affiant) (Title of Affiant)

BID FORM
for
General Construction
Lawrence County CARES Grant
Bid No. 041124-01

Price: _____

Estimated Completion Date: _____

Comments:

_____

_____

Submitted By:

_____ _____
Signature Date

_____ _____
Company Name Contact Name

_____ _____
Address Phone

_____ _____
Email

SECTION 00 01 15 – LIST OF DRAWINGS

Sheet No.	Description
CS-1	Cover Sheet
C1	Civil Cover Sheet
C1 01	Existing Conditions and Demolition Plan
C2 01	Site Layout Plan
C3 01	Site Grading Plan
C4 01	Site Utility Plan
C5 01	Civil Details
A1.1	Finish Floor
A1.2	Mezzanine Floor Plan
A1.3	Roof Plan
A2.0	Exterior Elevations
A3.0	Stair Section and Details
A4.0	Reference Lift Drawings
S1.0	General Notes
S2.0	Enlarged Foundation and Framing Plans at Stair
S3.0	Sections
M1.1	HVAC & Plumbing
E0.1	Notes, Schedules, and Details
E2.1	Under Mezzanine Lighting Plan
E2.2	Mezzanine Lighting Plan
E3.1	Ground Level Power Plan
E3.2	Mezzanine Level Power Plan

END OF SECTION 00 01 15

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

PART 1 - DOCUMENTS

1.1 BID FORMS AND BID PREPARATION:

A. Bid Forms and Bid Preparation: All bids will be submitted on forms contained herein and shall be subject to all requirements of the specifications and drawings. Bid forms can be removed from the project manual.

B. All blank spaces for bid prices must be filled in, in ink or typewritten, in both words and figures.

C. By the General Contractors Licensing Act of 1976 and T.C.A. 62-6-119 of 1994, Each bidder must submit the following information for his bid to be considered valid. Each bid must be submitted in a sealed envelope bearing on the outside the following information:

1. Name of Bidder.
2. Address of Bidder, including Zip Code and Phone Number, to show whether bidder is a resident of the State of Tennessee.
3. Tennessee License Number of Bidder.
4. Expiration Date of Tennessee License Number.
5. That Classification of Bidder's License which applies to this Bid / Bidder must write out the work classifications of his license which apply to the work of this project.
6. Name of the Project for which the Bid is submitted.
7. List Subcontractors, License Number, Expiration Date thereof, and License Classification for the following subcontractors on the outside of the envelope containing the Bid:

    a. Electrical
    b. Plumbing

8. Item No. 7 is required by Tennessee Law, T.C.A. 62-6-119.

    a. "The architect, Engineer, Construction Manager, Construction Consultant or any other persons or entity involved in the preparation of the invitation to bid or comparable bid, documents shall direct that the license number, expiration date thereof, and license classification of the contractor applying to the bid for electrical, plumbing or heating ventilation or air conditioning, appear on the outside of the envelope containing the bid; otherwise the Bid shall not be opened or considered."
    b. "Any Bid envelope which contains the listing of more than one contractor in each classification shall be considered in violation. Failure to observe this section constitutes a Class A Misdemeanor."

D. If forwarded by mail, the sealed envelope containing the bid must be enclosed in another envelope addressed as “SEALED BID ENCLOSED”.

E. Conditional bids will not be accepted.

F. Examination of Site: Bidders shall visit the site of the project, and the Contractor shall be assumed to have visited the premises and to have allowed for all conditions that might affect his work. No consideration will be given any claim based on lack of knowledge of existing conditions.

G. Obligation of Bidder: Bidders shall notify the Architect immediately should, during his examination of the site or any of the associated documents, he finds a discrepancy. At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and be thoroughly familiar with plans and contract documents (including all addenda). Failure or omission of any bidder to examine any form, instrument or document shall in no way relieve any bidder from any obligation in respect to bid.

H. Conditions of Work: Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor thereon. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract. Employ such means and methods that will not cause any interruptions or interference with work by others.

1.2 ADDENDA:

A. Interpretations and Addenda: The Architect will make every effort necessary to cooperate with bidders in making the proper interpretations of the Contract Documents and in advising all bidders of such interpretation.

B. Questions from bidders must be directed to the Engineer or Owner as soon as possible to allow sufficient time for preparation and distribution of addenda.

C. It shall be the bidder's responsibility to make inquiry as to addenda issued. All such addenda shall become a part of the contract and all bidders shall be bound by such addenda, whether they are received by the bidders, or not.

D. Responsibility of General Contractor to Subcontractor Regarding Addenda: Each prime bidder (i.e., General Contractor) will receive every addendum. Copies of addenda will also be mailed to construction plans rooms, but not to the subcontractors. It shall be the responsibility of each prime bidder to forward copies of addenda or otherwise inform their subcontractors.

1.3 BID SECURITY:

A. Bid Guaranty (Bid Bond): The bid must be accompanied by a bid guaranty that shall not be less than 5 percent (5%) of the amount of the bid, and at the option of the bidder may be a certified check, bank draft, U. S. Government Bonds at par value, or a bid bond secured by a surety company. Certified check or bank draft must be made payable to the order of the Owner. The bid guaranty shall insure the execution of the Contract and the furnishing of performance and payment bond or bonds by the successful bidder all as required by the specifications. If the successful bidder withdraws his bid within Ninety (90) days of the bid opening, then his bid bond will automatically be forfeited to the Owner.

PART 2 - CONSIDERATION OF BIDS

2.1 BIDDER(S) CONSTRUCTION EXPERIENCE:

A. Before a bid is considered for award, the bidder may be requested by the Owner to submit a statement regarding his previous experience in performing comparable work, his business and technical organization, and financial resources.

2.2 QUALIFICATIONS OF BIDDER(S):

A. Bids are acceptable only from contractors, properly and currently licensed.

B. The bidder is advised that any person, firm, or other party to whom it is proposed to award a subcontract under this contract must be acceptable to the Owner and/or Architect.

2.3 RECEIVING BIDS:

A. Bids received prior to the time of opening will be securely kept, unopened. The officer whose duty it is to open them will decide when the specified time has arrived, and no bid received thereafter will be considered; except that when a bid arrived by mail after the time fixed for opening, but before award is made, and it is shown to the satisfaction of the officer authorized to make the award that the non arrival on time was due solely to delay in the mails for which the bidder was not responsible, such bid will be received and considered. No responsibility will be attached to an officer for the premature opening of a bid not properly addressed and identified. Unless specifically authorized, telegraphic bids will not be considered.

B. Bids will be publicly opened at the time and place fixed for the opening of bids indicated on the Invitation for Bid. Every bid received within the time fixed for receiving bids and that meets all requirements listed in the Instructions to Bidders will be opened and the results made known.

C. Bids may be withdrawn on written or telegraphic request dispatched by the bidder in time for delivery in the normal course of business prior to the time fixed for opening; provided, that written confirmation of any telegraphic withdrawal over the signature of the bidder is placed in the mail and postmarked prior to the time set for bid opening. Negligence on the part of the bidder in preparing his bid confers no right of withdrawal or modification of his bid after such bid has been opened.

2.4 AWARD OF CONTRACT:

A. The contract will be awarded to the responsible bidder submitting the lowest proposal complying with the conditions of the Invitation to Bid, provided his bid is reasonable and it is to the best interest of the Owner, at the earliest practicable date. The Owner, however, reserves the right to reject any and all bids and to waive any informality in bids received whenever such rejection or waiver is in the interest of the Owner.

B. The Owner also reserves the right to reject the bid of any bidder who has previously failed to perform properly, or to complete on time, contracts of a similar nature, who is not in a position to perform the contract, or who has habitually and without just cause neglected the payment of bills or otherwise disregarded his obligations to subcontractors, material men, or employees.

C. The ability of a bidder to obtain a performance bond shall not be regarded as the sole test of such bidder's competency or responsibility.

PART 3 - PERFORMANCE AND PAYMENT BOND:

3.1 Subsequent to the award and within ten days after the prescribed forms are presented for signature the successful bidder shall execute and deliver to the Owner a contract in the form furnished in such number of counterparts as the Owner may require.

3.2 Having satisfied all conditions of award as set forth elsewhere in these documents, the successful bidder shall, within the period specified above, furnish bond(s) in a penal sum of at least the full amount of the contract as awarded, in the form included in the specifications, which secures the faithful performance of the contract, and for the payment of all persons, firms, or corporations to whom the contractor may become legally indebted for labor, materials, tools equipment or services of any nature employed or used by him in performing the work. Such bond(s) shall bear the same date as or a date subsequent to, the date of the contract.

1. The current power of attorney for the person who signs for any surety company shall be attached to such bond.

3.3 The failure of the successful bidder to execute such contract and to supply the required bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Owner may grant based upon reasons determined adequate by the Owner shall constitute a default, and the Owner may either award the contract to the next responsible bidder or re-advertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid guaranty.

PART 4 - POST-BID INFORMATION

4.1 LAWS AND REGULATIONS:

A. The bidder's attention is directed to the fact that all applicable State Laws, municipal ordinances, and the rules and regulations of all authorities having jurisdiction over

construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

B. The contractor and all subcontractors shall further comply with applicable building codes as referenced in the various sections of these specifications.

C. The contractor shall include, either on the bid form or attached thereto, a statement to the fact that the contractor is an Equal Opportunity Employer, and that the contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin.

1. Refer to further requirements as specified in the General Conditions.

D. Project Superintendent: The contractor will employ a qualified superintendent to run the project, with at least 4 years previous experience as a superintendent. The superintendent shall not be removed or transferred from the project by the contractor without prior approval of the Engineer. The Engineer reserves the right to request the removal of the superintendent or any employee, subcontractor, etc. if in his judgment it is in the best interest of the Owner and the Project.

4.2 PRE-CONSTRUCTION CONFERENCE:

A. Either before or soon after the actual award of the contract (but in any event prior to the start of construction), the contractor or his representative shall attend a pre-construction conference with representatives of the Owner. The conference will serve to acquaint the participants with the general plan of contract administration and requirements under which the construction operation is to proceed and will inform the contractor of the obligations imposed on him and his subcontractors.

1. The date, time, and place of the conference will be furnished to the contractor by the Architect.

4.3 CONTRACTOR’S LICENSE REQUIREMENTS:

A. The following is excerpted from the Contractor's Licensing Act of 1976:

1. 62-6-103.Contractor's License Required-- Recovery of Expenses by Unlicensed Contractor.

a. Any person, firm or corporation engaged in contracting in this state shall be required to submit evidence that he is qualified to engage in contracting, and shall be licensed as hereinafter provided; it shall be unlawful for any person, firm or corporation to engage in or offer to engage in contracting in the state, unless such person, firm or corporation has been duly licensed under the provisions of this chapter, as hereinafter provided. Any person, firm, or corporation engaged in contracting, including such person, firm, or corporation that engages in the construction of residences or dwellings constructed on private property for the

purpose of resale, lease, rent or any other similar purpose shall be required to submit evidence that he is qualified to engage in contracting and/or building, and shall be licensed. It shall be unlawful for any person, firm, or corporation to engage in, or offer to engage in contracting or building as hereinabove described, unless such person, firm or corporation has been duly licensed under the provisions of this chapter. Any person, firm, or church that owns property and buildings for individual use, and not for resale, lease, rent or other similar purpose, is exempt from the requirements of this chapter. Notwithstanding the foregoing, the license of any person, firm or corporation licensed as a general contractor on March 29, 1976, shall continue in force until the natural expiration thereof.

b. Contracts entered into by a person who is licensed by the Board shall clearly state that such person is licensed by the State Board for Licensing Contractors and that the Board is authorized to receive complaints relative to such person's professional conduct.

c. Any unlicensed general contractor covered by the provisions of this chapter shall be permitted in a court of equity to recover actual documented expenses only upon a showing of clear and convincing proof. (Acts 1976 (Adj. S.), Ch. 822, Section 3; 1977, Ch. 9, Section 1; 1979, Ch. 59, Section 7; 1980 (Adj. S.), Ch. 652, Section 5; T.C.A., Section 62-603.)

END OF SECTION 00 21 13

SECTION 00 43 21 - ALLOWANCE FORM

1.1 BID INFORMATION

A. Bidder: _____.

B. Project Name: **Lawrenceburg Square Pavilion – Phase 2**

C. Project Location: **South Military Drive, Lawrenceburg, TN 38464**

D. Owner: **Lawrence County Government**

E. Architect: **TLM Associates, Inc.; 117 E. Lafayette St., Jackson, TN 38301; 731-988-9840**

F. Architect Project Number: **J-7134**

1.2 BID FORM SUPPLEMENT

A. This form is required to be attached to the Bid Form.

B. The undersigned Bidder certifies that Base Bid submission to which this Bid Supplement is attached includes those allowances described in the Contract Documents and scheduled in Specification Section 01 21 16 – Allowances.

1.3 SUBMISSION OF BID SUPPLEMENT

A. Respectfully submitted this ____ day of _____, 2024.

B. Submitted By:_____ (Insert name of bidding firm or corporation).

C. Authorized Signature: _____(Handwritten signature).

D. Signed By: _____ (Type or print name).

E. Title: _____ (Owner/Partner/President/Vice President).

END OF DOCUMENT 00 43 21

SECTION 00 45 00 – DRUG FREE WORKPLACE AFFIDAVIT

STATE OF: TENNESSEE
COUNTY OF:

The undersigned, principal officer, of _____, an employer of five (5) or more employees contracting with, Lauderdale County, Tennessee government to provide construction services, hereby states under oath as follows:

1. The undersigned is a principal officer of _____ (hereinafter referred to as the "Company") and is duly authorized to execute this Affidavit on behalf of the Company.

2. The Company submits this Affidavit pursuant to T.C.A. § 50-9-113, which requires each employer with no less than five (5) employees receiving pay who contracts with the state or any local government to provide construction services to submit an affidavit stating that such employer has a drug-free workplace program that complies with Title 50, Chapter 9, of the *Tennessee Code Annotated.*

3. The Company is in compliance with T.C.A. § 50-9-113.

4. Attached hereto is a true and correct copy of the company's "certificate of compliance" (certified application) from the Tennessee Department of Labor and Workforce Development.

Further affiant saith not.

Principal Officer

STATE OF:
COUNTY OF:

Before me personally appeared _____, with whom I am personally acquainted (or proved to me on the basis of satisfactory evidence), and who acknowledged that such person executed the foregoing affidavit for the purposes therein contained.

Witness my hand and seal at office this_____ day of _____ 2024.

_____ My commission expires:
Notary Public

ATTACH A COPY OF YOUR CERTIFICATE OF COMPLIANCE TO THIS AFFIDAVIT, PLACE IN A SEPARATE SEALED ENVELOPE, AND ATTACH TO THE OUTSIDE OF THE SEALED ENVELOPE CONTAINING YOUR BID. IF YOUR COMPANY HAS LESS THAN FIVE (5) EMPLOYEES, SIGN BELOW, PLACE THIS AFFIDAVIT ONLY IN A SEPARATE SEALED ENVELOPE, AND ATTACH TO THE OUTSIDE OF THE SEALED ENVELOPE CONTAINING YOUR BID.

.....

IF LESS THAN FIVE (5) Employees Sign Here:

_____

Title:

SECTION 00 81 00 – SUPPLEMENTARY CONDITIONS
Modifications to General Conditions

Introduction: The following supplements modify, delete and/or add to the General Conditions. Where any article, paragraph or subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any article, paragraph or subparagraph in the General Conditions is amended, voided, or superseded by any of the following paragraphs, the provisions of such article, paragraph or subparagraph not so amended, voided, or superseded shall remain in effect.

Supplements and Changes to the General Conditions, A.I.A. Form A201 2017 Edition.

ARTICLE 1 - CONTRACT DOCUMENTS

1.2 Execution, Correlation, Intent, and Interpretations:

Add the following to 1.2.1 - Later claims for extra compensation for labor, materials, and equipment which could have been foreseen shall not be recognized.

ADD 1.2.4 as follows:

1.2.4 If any error, discrepancy, or variances are found in the documents, the Contractor shall notify the Architect before beginning the work involved. The Architect will make correction, interpretation, or clarification promptly, basing his decision on the intent of the Documents.

ARTICLE 3 - CONTRACTOR

3.4 Labor and Materials: Add the following:

3.4.4 All material delivered to the job site shall be so stored and handled as to preclude inclusion of any foreign substances or causing of any discoloration therein and to prevent any damage thereto which might reduce its effectiveness as part of the work.

3.4.5 All work as described or required shall be executed in neat, skillful, workmanlike manner in accordance with best recognized trade practices. Only competent workmen who satisfactorily perform their duties shall be employed on work.

3.4.6 Trade Names: Where trade names appear in the specifications, they are used to indicate standards of quality. However, this is intended to be an open specification (except as otherwise designated), accessible to any reputable manufacturer whose product, in Architect's opinion, is equal to that named or described and meets requirements of Contract Documents. The Architect, however, shall be sole judge of products submitted as being equal to those specified in respect to comparative qualities, and his decision shall be final and conclusive.

3.4.7 No asbestos containing materials may be used in this project nor may asbestos containing building materials be included as a building element.

3.9 Superintendent: Add the following:

3.9.4 Contractor's Superintendent shall devote his full time to this project and shall maintain his office on job site. He shall direct, coordinate and supervise all work under this contract and shall inspect all materials delivered to project. He shall ascertain whether or not they comply with contract requirements and shall reject all nonconforming materials. He shall have all nonconforming materials removed immediately from the project site.

3.14 Cutting and Patching of Work: Add the following:

3.14.3 Cutting and patching shall be the responsibility of the subcontractor requiring access to an area such as the mechanical contractor or electrical contractor needing to get to their respective equipment or lines.

3.14.4 Patch work shall be performed by the appropriate subcontractor engaged in a given craft or trade; that is, the plaster subcontractor shall do all patching of plaster; ceramic tile subcontractor shall patch ceramic tile, etc.

3.14.5 The cost of required patching shall be the responsibility of that subcontractor requiring access.

3.14.6 Patching of all finishes shall match existing to meet Architect's approval.

3.15 Cleaning Up: Add to 3.15.1 the following: He shall replace any broken glass, remove stains, spots, marks and dirt from decorated work, clean hardware, remove paint spots and smears from all surfaces, clean fixtures and wash all concrete and tile.

ARTICLE 7 - CHANGES IN THE WORK

7.3 Construction Change Directives - Add after Clause 7.3.6 the following:

A "reasonable" allowance for overhead and profit shall be defined as follows:

(1) For the subcontractor, 11% of the net extra cost of the work he performs.
(2) For the Contractor, 5-1/2% of the net extra cost of the work performed by subcontractors.
(3) For the Contractor, 11% of the net extra cost of the work he performs with his own forces.

9.3.1 Application for Payments: Add to 9.3.1 the following:

Ninety-five percent (95%) of value of work executed and ninety-five percent (95%) of value of materials properly stored on site, less previous payments, shall be paid each month by Owner to Contractor based on Architect's approval of Application for Payment. Approved forms are A.I.A. forms G702 and G703, 1992 Edition.

9.8 Substantial Completion

Add to 9.8.2 the following:

9.8.2.1 Upon notification by the Contractor that the work is sufficiently complete for Architect's inspection, the architect will, within a reasonable time conduct an inspection. As a result of this inspection the Architect will issue a list of items (Punch List) to the Contractor which requires completion or correction.

9.8.2.2 After the Architect has inspected the project and provided the Contractor with a "Punch List", and the Contractor has corrected those items listed in the "Punch List", the Contractor shall notify the Architect of corrections and ask for a final inspection.

9.8.2.3 When the Architect makes his final inspection to verify those corrections and perhaps finds that some of the items which were previously listed have not been corrected, the Architect may elect to retain the full amount of the dollar estimate of the "Punch List". This retainage will be paid upon final completion requirements as specified in 9.10 of the General Conditions. See Section 01 77 00 - Close-Out Procedures for Re-Inspection fees.

10.2 Safety of Persons and Property: Add the following, 10.2.9:

All work shall be considered under the care, custody, or control of the Contractor until completion and acceptance by the Owner and Architect.

ARTICLE 11 - INSURANCE AND BONDS

11.1.1 Supplement as follows: Workman's Compensation and Employer's Liability.

The Contractor agrees to comply with the provisions of the Workman's Compensation Laws of the State in which the work is performed and to require all subcontractors likewise to comply. The Contractor agrees that, prior to the beginning of any work by the Contractor or Subcontractors, as the case may be, the Contractor will furnish to the Owner for himself and for each subcontractor a certificate from insurance company showing issuance of workman's compensation coverage for the State, or a certificate from the State Workman's Board showing proof of liability to pay compensation directly.

Employer's Protective Liability: $100,000.00 per person - $300,000.00 each occurrence for Property Damage.

$300,000.00 per person - $500,000.00 each occurrence for Bodily Injury Liability.

Further, the Contractor shall maintain such other insurance (with limits as shown below) to protect the Contractor, the Owner, and the Architect from any claims for property damage or personal injury, including death, which may arise out of operations under the Contract. The Contractor shall furnish the Owner certificates and policies of such insurance (as specified below) before the work begins.

Below is listed the additional insurance coverage which shall be procured by the Contractor at his own expense.

1. The Contractor's General Liability Insurance shall be in an amount not less than $1,000,000.00 combined single limits for injuries and property damage, for any one occurrence, with a $2,000,000.00 aggregate.

1B. There shall also be a $1,000,000.00 "umbrella".

1C. Vehicle - $1,000,000.00 Combined Single Limit occurrence, including Hired and Non-Owned Auto Liability.

2. Owners Contractors Protective (OCP) shall be provided in the name of the Owner and for a minimum of $1,000,000.00 per occurrence $2,000,000 aggregate.

ADD 11.1.5 as follows:

The Owner and TLM Associates, Inc. shall be additional named insureds under the Contractor's insurance policy or policies and the Certificate of Insurance shall so state.

ADD 11.1.6 as follows:

The insurance as specified above shall contain a **"per project endorsement"** such that the above coverages shall apply to this specific project.

When such hazard exists and before any earth moving or excavating equipment is used on the premises, the Contractor or Subcontractor involved shall provide coverage for liability arising from the destruction of property below the surface of the ground (U coverage).

When explosives are used or when such hazard exists or becomes present on the premises, the contractor or Subcontractor shall purchase insurance covering all liability arising from blasting or explosion (X & C Coverage). The Architect shall be notified 72 hours (excluding weekends and holidays) prior to the use of explosives.

11.3 Property Insurance – Add the following:

11.3.1.6 Builder's Risk Insurance shall be purchased by the **Contractor** at his own expense and shall cover fire, extended coverage, vandalism, and malicious mischief. Said insurance policy to be in the name of the Owner, Architect, the Contractor, and the Subcontractor "as their interests may appear" and to cover the full value of the work in sufficient amount to cover fully the value of the work performed and material on the site. This insurance will not be applicable to any tools or equipment when such tools and equipment are not part of the structure being constructed. The Contractor shall be responsible for the securing and maintaining of fire insurance and other insurance on any tools, equipment, or supplies which are to remain his property.

Change 11.4.1 to read as follows:

11.4.1 The Contractor shall furnish a Performance Bond and a Labor and Materials Payment Bond in an amount equal to 100% of the Contract Sum as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. Form of Instruments shall be A.I.A. A- 311, February 1970 Edition; no substitutes. Bond shall be furnished through an agent domiciled and legally authorized to do business in the State in which the work is to be performed and delivered to the Owner not later than the date of execution of the contract. Surety company shall be one acceptable to the Owner and Architect.

ARBITRATION

References to Arbitration shall be removed from the General Conditions. These deletions are located as follows: 8.3.1, 11.3.10, 13.1.1, 15.3.2 and the entirety of 15.4.

ADDITIONAL CONDITIONS

FIRE RATED ASSEMBLIES

A. The Contractor shall be responsible for providing assemblies which conform to fire ratings indicated. He shall coordinate the work of subcontractor and suppliers involved in floor assemblies, roof assemblies, wall and partition assemblies required to be fire rated and shall submit evidence that such assemblies conform to fire ratings indicated. No claims for extra compensation for work required to conform to fire ratings shall be recognized.

B. The Architect shall furnish to the Contractor required sets of plans and specifications properly sealed, for use in obtaining a building permit. It shall be the responsibility of the Architect to ensure that the plans are in agreement with the local codes.

C. The Contractor shall be responsible for obtaining approvals of the plans from all governmental agencies having jurisdiction.

EXECUTION OF CONTRACT

A. Subsequent to the award and within ten days after the prescribed forms are presented for signature the successful bidder shall execute and deliver to the Owner a contract in the form furnished in such number of counterparts as the Owner may require.
B. The failure of the successful bidder to execute such contract and to supply the required bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Architect may grant based upon reasons determined adequate by the Owner shall constitute a default, and the Owner may either award the Contract to the next responsible bidder or re-advertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid guaranty.

PRE-CONSTRUCTION CONFERENCE

A. Either before or soon after the actual award of the contract (but in any event prior to the start of construction), the Contractor or his representative shall attend a pre-construction conference with representatives of the Owner and the Architect. The conference will serve to acquaint the participants with the general plan of contract administration and requirements under which the construction operation is to proceed and will inform the Contractor of the obligations imposed on him and his subcontractors.

B. The date, time and place of the conference will be furnished to the Contractor by the Architect.

LAWS AND REGULATIONS

A. The bidder's attention is directed to the fact that all applicable State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

B. The Contractor and all subcontractors shall further comply with applicable building codes as referenced in the various sections of the specifications.

C. The Contractor shall include, on the bid form, a statement to the fact that the Contractor is an Equal Opportunity Employer, and that the Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin.

PROJECT SUPERINTENDENT: The Contractor will employ a qualified superintendent to run the project, with at least 4 years previous experience as a superintendent.

END OF SECTION 00 81 00

SECTION 00 81 17 – SUPPLEMENTARY CONDITIONS
Modifications to AIA General Conditions A201-2017

Introduction: The following supplements modify, delete and/or add to the General Conditions. Where any article, paragraph or subparagraph in the General Conditions is supplemented by one of the following paragraphs, the provisions of such article, paragraph or subparagraph shall remain in effect and the supplemental provisions shall be considered as added thereto. Where any article, paragraph or subparagraph in the General Conditions is amended, voided, or superseded by any of the following paragraphs, the provisions of such article, paragraph or subparagraph not so amended, voided, or superseded shall remain in effect.

Supplements and Changes to the General Conditions, A.I.A. Form A201 2017 Edition.

ARTICLE 1 – GENERAL PROVISIONS

1.2 Execution, Correlation, Intent and Interpretations:

Add the following to 1.2.1 - Later claims for extra compensation for labor, materials, and equipment which could have been foreseen shall not be recognized.

ADD 1.2.4 as follows:

1.2.4 If any error, discrepancy, or variances are found in the documents, the Contractor shall notify the Architect before beginning the work involved. The Architect will make correction, interpretation, or clarification promptly, basing his decision on the intent of the Documents.

ARTICLE 3 - CONTRACTOR

3.4 Labor and Materials: Add the following:

3.4.4 All material delivered to the job site shall be so stored and handled as to preclude inclusion of any foreign substances or causing of any discoloration therein and to prevent any damage thereto which might reduce its effectiveness as part of the work.

3.4.5 All work as described or required shall be executed in neat, skillful, workmanlike manner in accordance with best recognized trade practices. Only competent workmen who satisfactorily perform their duties shall be employed on work.

3.4.6 Trade Names: Where trade names appear in the specifications, they are used to indicate standards of quality. However, this is intended to be an open specification (except as otherwise designated), accessible to any reputable manufacturer whose product, in Architect's opinion, is equal to that named or described and meets requirements of Contract Documents. The Architect, however, shall be sole judge of products submitted as being equal to those specified in respect to comparative qualities, and his decision shall be final and conclusive.

3.4.7 No asbestos containing materials may be used in this project nor may asbestos containing building materials be included as a building element.

3.9 Superintendent: Add the following:

3.9.4 Contractor's Superintendent shall devote his full time to this project and shall maintain his office on job site. He shall direct, coordinate and supervise all work under this contract and shall inspect all materials delivered to project. He shall ascertain whether or not they comply with contract requirements and shall reject all nonconforming materials. He shall have all nonconforming materials removed immediately from the project site.

3.14 Cutting and Patching of Work: Add the following:

3.14.3 Cutting and patching shall be the responsibility of the subcontractor requiring access to an area such as the mechanical contractor or electrical contractor needing to get to their respective equipment or lines.

3.14.4 Patch work shall be performed by the appropriate subcontractor engaged in a given craft or trade; that is, the plaster subcontractor shall do all patching of plaster; ceramic tile subcontractor shall patch ceramic tile, etc.

3.14.5 The cost of required patching shall be the responsibility of that subcontractor requiring access.

3.14.6 Patching of all finishes shall match existing to meet Architect's approval.

3.15 Cleaning Up: Add to 3.15.1 the following: He shall replace any broken glass, remove stains, spots, marks and dirt from decorated work, clean hardware, remove paint spots and smears from all surfaces, clean fixtures and wash all concrete and tile.

ARTICLE 7 - CHANGES IN THE WORK

7.3 Construction Change Directives - Add after Clause 7.3.10 the following:

7.3.11 A "reasonable" amount for overhead and profit shall be defined as follows:

(1) For the subcontractor, 11% of the net extra cost of the work he performs.
(2) For the Contractor, 5-1/2% of the net extra cost of the work performed by subcontractors.
(3) For the Contractor, 11% of the net extra cost of the work he performs with his own forces.

9.3.1 Application for Payments: Add to 9.3.1 the following:

Ninety-five percent (95%) of value of work executed and ninety-five percent (95%) of value of materials properly stored on site, less previous payments, shall be paid each month by Owner to Contractor based on Architect's approval of Application for Payment. Approved forms are A.I.A. forms G702 and G703, 1992 Edition.

9.8 Substantial Completion

Add to 9.8.2 the following:

9.8.2.1 Upon notification by the Contractor that the work is sufficiently complete for Architect's inspection, the architect will, within a reasonable time conduct an inspection. As a result of this inspection the Architect will issue a list of items (Punch List) to the Contractor which requires completion or correction.

9.8.2.2 After the Architect has inspected the project and provided the Contractor with a "Punch List", and the Contractor has corrected those items listed in the "Punch List", the Contractor shall notify the Architect of corrections and ask for a final inspection.

9.8.2.3 When the Architect makes his final inspection to verify those corrections and perhaps finds that some of the items which were previously listed have not been corrected, the Architect may elect to retain the full amount of the dollar estimate of the "Punch List". This retainage will be paid upon final completion requirements as specified in 9.10 of the General Conditions. See Section 01 77 17 - Close-Out Procedures for Re-Inspection fees.

10.2 Safety of Persons and Property: Add the following, 10.2.9:

All work shall be considered under the care, custody, or control of the Contractor until completion and acceptance by the Owner and Architect.

ARTICLE 11 - INSURANCE AND BONDS

11.1.1 Supplement as follows: Workman's Compensation and Employer's Liability.

The Contractor agrees to comply with the provisions of the Workman's Compensation Laws of the State in which the work is performed and to require all subcontractors likewise to comply. The Contractor agrees that, prior to the beginning of any work by the Contractor or Subcontractors, as the case may be, the Contractor will furnish to the Owner for himself and for each subcontractor a certificate from insurance company showing issuance of workman's compensation coverage for the State, or a certificate from the State Workman's Board showing proof of liability to pay compensation directly.

Employer's Protective Liability: $100,000.00 per person - $300,000.00 each occurrence for Property Damage.

$300,000.00 per person - $500,000.00 each occurrence for Bodily Injury Liability.

Further, the Contractor shall maintain such other insurance (with limits as shown below) to protect the Contractor, the Owner, and the Architect from any claims for property damage or personal injury, including death, which may arise out of operations under the Contract. The Contractor shall furnish the Owner certificates and policies of such insurance (as specified below) before the work begins.

Below is listed the additional insurance coverage which shall be procured by the Contractor at his own expense.

1. The Contractor's General Liability Insurance shall be in an amount not less than $1, 000,000.00 combined single limits for injuries and property damage, for any one occurrence, with a $ 2,000,000.00 aggregate.

1B. There shall also be a $1,000,000.00 "umbrella".

1C. Vehicle - $1,000,000.00 Combined Single Limit occurrence, including Hired and Non-Owned Auto Liability.

2. Owners Contractors Protective (OCP) shall be provided in the name of the Owner and for a minimum of $1,000,000.00 per occurrence $2,000,000 aggregate.

ADD 11.1.2 as follows:

The Contractor shall furnish a Performance Bond and a Labor and Materials Payment Bond in an amount equal to 100% of the Contract Sum as security for the payment of all persons performing labor on the project under this contract and furnishing materials in connection with this contract. Form of Instruments shall be A.I.A. A- 311, February 1970 Edition; no substitutes. Bond shall be furnished through an agent domiciled and legally authorized to do business in the State in which the work is to be performed and delivered to the Owner not later than the date of execution of the contract. Surety company shall be one acceptable to the Owner and Architect.

ADD 11.1.5 as follows:

The Owner and TLM Associates, Inc. shall be additional named insureds under the Contractor's insurance policy or policies and the Certificate of Insurance shall so state.

ADD 11.1.6 as follows:

The insurance as specified above shall contain a **"per project endorsement"** such that the above coverages shall apply to this specific project.

When such hazard exists and before any earth moving or excavating equipment is used on the premises, the Contractor or Subcontractor involved shall provide coverage for liability arising from the destruction of property below the surface of the ground (U coverage).

When explosives are used or when such hazard exists or becomes present on the premises, the contractor or Subcontractor shall purchase insurance covering all liability arising from blasting or explosion (X & C Coverage). The Architect shall be notified 72 hours (excluding weekends and holidays) prior to the use of explosives.

ADD 11.1.7 as follows:

Builder's Risk Insurance shall be purchased by the **Contractor** at his own expense and shall cover fire, extended coverage, vandalism, and malicious mischief. Said insurance policy to be in the name of the Owner, Architect, the Contractor, and the Subcontractor "as their interests may appear" and to cover the full value of the work in sufficient amount to cover fully the value of the work performed and material on the site. This insurance will not be applicable to any tools or equipment when such tools and equipment are not part of the structure being constructed. The Contractor shall be responsible for the securing and maintaining of fire insurance and other insurance on any tools, equipment, or supplies which are to remain his property.

ARBITRATION

References to Arbitration shall be removed from the General Conditions. These deletions are located as follows: 13.1, 15.3.2 and the entirety of 15.4.

ADDITIONAL CONDITIONS

FIRE RATED ASSEMBLIES

A. The Contractor shall be responsible for providing assemblies which conform to fire ratings indicated. He shall coordinate the work of subcontractor and suppliers involved in floor assemblies, roof assemblies, wall and partition assemblies required to be fire rated and shall submit evidence that such assemblies conform to fire ratings indicated. No claims for extra compensation for work required to conform to fire ratings shall be recognized.

B. The Architect shall furnish to the Contractor required sets of plans and specifications properly sealed, for use in obtaining a building permit. It shall be the responsibility of the Architect to ensure that the plans are in agreement with the local codes.

C. The Contractor shall be responsible for obtaining approvals of the plans from all governmental agencies having jurisdiction.

EXECUTION OF CONTRACT

A. Subsequent to the award and within ten days after the prescribed forms are presented for signature the successful bidder shall execute and deliver to the Owner a contract in the form furnished in such number of counterparts as the Owner may require.
B. The failure of the successful bidder to execute such contract and to supply the required bonds within ten days after the prescribed forms are presented for signature, or within such extended period as the Architect may grant based upon reasons determined adequate by the Owner shall constitute a default, and the Owner may either award the Contract to the next responsible bidder or re-advertise for bids, and may charge against the bidder the difference between the amount of the bid and the amount for which a contract for the work

is subsequently executed, irrespective of whether the amount thus due exceeds the amount of the bid guaranty.

PRE-CONSTRUCTION CONFERENCE

A. Either before or soon after the actual award of the contract (but in any event prior to the start of construction), the Contractor or his representative shall attend a pre-construction conference with representatives of the Owner and the Architect. The conference will serve to acquaint the participants with the general plan of contract administration and requirements under which the construction operation is to proceed and will inform the Contractor of the obligations imposed on him and his subcontractors.

B. The date, time and place of the conference will be furnished to the Contractor by the Architect.

LAWS AND REGULATIONS

A. The bidder's attention is directed to the fact that all applicable State Laws, municipal ordinances and the rules and regulations of all authorities having jurisdiction over construction of the project shall apply to the contract throughout and they will be deemed to be included in the contract the same as though herein written out in full.

B. The Contractor and all subcontractors shall further comply with applicable building codes as referenced in the various sections of the specifications.

C. The Contractor shall include, on the bid form, a statement to the fact that the Contractor is an Equal Opportunity Employer, and that the Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin.

PROJECT SUPERINTENDENT: The Contractor will employ a qualified superintendent to run the project, with at least 4 years previous experience as a superintendent.

END OF SECTION 00 81 17

DIVISION 1

GENERAL REQUIREMENTS

SECTION 01 11 13 – SUMMARY OF WORK

PART 1 - GENERAL

1.1 The General Conditions of the Contract and Supplementary General Conditions of the Contract of this specification are herein made a part of this section of the specifications. The Contractor and Subcontractor shall carefully examine all drawings and all sections of the specifications so as to properly coordinate his work with the work of others.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The work of this contract is listed in the attachment following this section.

1.3 CONTRACTOR'S DUTIES

A. Except as specifically noted, provide and pay for labor, materials and equipment, tools, construction equipment and machinery, water, heat and utilities required for construction; other facilities and services necessary for proper execution and completion of work.

B. Pay legally required sales, consumer and use taxes.

C. Secure and pay for, as necessary for proper execution and completion of work and as applicable at time of receipt of bids, Permits, Government Fees and Licenses.

D. Give required notices.

E. Comply with codes, ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.

F. Promptly submit written notice to Designer of observed variance of Contract Documents from legal requirements. It is not the Contractor's responsibility to make certain that drawings and specifications comply with codes and regulations.

G. Appropriate modifications to contract documents will adjust necessary changes. Assume responsibility for work known to be contrary to requirements without notice.

H. Enforce strict discipline and good order among employees. Do not employ or work unfit persons or persons not skilled in assigned work.

1.4 CONTRACTS

A. Construct work under single lump sum contract.

1.5 SPECIAL ORDER MATERIALS

A. The Contractor shall be advised that certain products, materials and equipment may be available on special order basis only; and shall place his order for same with the manufacturer early so as not to delay the work.

1.6 CONTRACTOR USE OF PREMISES

A. Confine operations at site to areas permitted by Law, Ordinances, Permits and Contract Documents.

B. Do not unreasonably encumber site with materials or equipment.

C. Do not load structure with weight that will endanger structure.

D. Assume full responsibility for protection and safe keeping of products stored on premises.

E. Move any stored products which interfere with operations of Owner or other Contractor.

F. Obtain and pay for use of additional storage or work areas for needed operations.

1.7 EXAMINATION OF SURFACES

A. All Contractors shall examine all surfaces on which, or against which, their work is to be applied and shall notify the Designer of any defects that they may discover which, in their opinion would be detrimental to the proper installation of their product. Installation of material by the Contractors shall be considered as indication of acceptance of the surface by them.

1.8 COMPLETION

A. It is the intent of these specifications and the Contract Documents that each and every fixture, piece of equipment, appliance, and any other related articles shown on the drawings or specified herein, as required for the proper completion of the work, shall be completely installed, connected, wired, and made satisfactorily operable for use and service for which it was intended. The manufacturer or vendor of any fixture, equipment or appliance shall see to it that all connections, whether mechanical or wired, are properly built-in or attached to the article when or before it reaches the job site so it will operate with the connections prepared therefore in the building. Nevertheless, and notwithstanding any omission or failure on the part of the manufacturer or vendor to provide suitable connections, it shall be and it is the responsibility of the Contractor to install and connect such articles.

PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

N/A

END OF SECTION 01 11 13

SCOPE OF WORK

The structural steel building has been bid and awarded to Worldwide Steel out of Missouri. They will furnish all that is listed on the information sheets attached to the plan sheets.

Foundation and reinforcing are attached for bidding purposes.

All work shall be complete and ready for substantial completion on or before May 30, 2024. The building is expected to be delivered on or before May 6, 2024. A substantial portion of the funds are tied to a grant that requires close out no later than May 30, 2024.

The work comprises of the following but is not limited to this list.

- Civil: sitework, utilities, grading, and shaping the site for the building. This includes sidewalks and drainage.
- Structural: building foundations, building slab on grade and mezzanine concrete. This includes the steel stairs with concrete filled pans.
- Architectural: steel railings, stair railings, handrails, and guard rails. This includes a stair lift and installation.
- Plumbing: piping and hose bibb connections as indicated.
- HVAC: fan as indicated.
- Electrical: receptacles, lighting, panels, breakers, controls, switches, disconnects, conduits, junction boxes, and wiring.
- Building: gutters and downspouts, which are not part of the furnished building.

SECTION 01 21 00 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements governing allowances.

B. Types of allowances include the following:

1. Lump-sum allowances.
2. Unit-cost allowances.
3. Quantity allowances.
4. Contingency allowances.
5. Testing and inspecting allowances.

C. Related Requirements:

1. Specification Section 01 22 00 – Unit Prices for procedures for using unit prices, including adjustment of quantity allowances when applicable.
2. Specification Section 01 26 00 – Contract Modification Procedures for procedures for submitting and handling Change Orders.
3. Specification Section 01 40 00 – Quality Requirements for procedures governing the use of allowances for field testing by an independent testing agency.

1.3 DEFINITIONS

A. Allowance: A quantity of work or dollar amount included in the Contract, established in lieu of additional requirements, used to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.

1.4 SELECTION AND PURCHASE

A. At the earliest practical date after award of the Contract, advise Architect of the date when final selection, or purchase and delivery, of each product or system described by an allowance must be completed by the Owner to avoid delaying the Work.

B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

C. Purchase products and systems selected by Architect from the designated supplier.

1.5 ACTION SUBMITTALS

A. Submit proposals for purchase of products or systems included in allowances in the form specified for Change Orders.

1.6 INFORMATIONAL SUBMITTALS

A. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

B. Submit time sheets and other documentation to show labor time and cost for installation of allowance items that include installation as part of the allowance.

C. Coordinate and process submittals for allowance items in same manner as for other portions of the Work.

1.7 LUMP-SUM ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes, freight, and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.8 UNIT-COST ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes**,** freight**,** and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered

by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.9 QUANTITY ALLOWANCES

A. Allowance shall include cost to Contractor of specific products and materials ordered by Owner or selected by Architect under allowance and shall include taxes**,** freight**,** and delivery to Project site.

B. Unless otherwise indicated, Contractor's costs for receiving and handling at Project site, labor, installation, overhead and profit, and similar costs related to products and materials ordered by Owner or selected by Architect under allowance shall be included as part of the Contract Sum and not part of the allowance.

C. Unused Materials: Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.

1. If requested by Architect, retain and prepare unused material for storage by Owner. Deliver unused material to Owner's storage space as directed.

1.10 CONTINGENCY ALLOWANCES

A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.

B. Contractor’s overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation , taxes, insurance, equipment rental, and similar costs.

C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit.

D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.11 TESTING AND INSPECTING ALLOWANCES

A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.

B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure. The cost for incidental labor to assist the testing agency shall be included in the Contract Sum.

C. Costs of testing and inspection services not specifically required by the Contract Documents are Contractor responsibilities and are not included in the allowance.

D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.12 ADJUSTMENT OF ALLOWANCES

A. Allowance Adjustment: To adjust allowance amounts, prepare a Change Order proposal based on the difference between purchase amount and the allowance, multiplied by final measurement of work-in-place where applicable. If applicable, include reasonable allowances for cutting losses, tolerances, mixing wastes, normal product imperfections, required maintenance materials, and similar margins.

1. Include installation costs in purchase amount only where indicated as part of the allowance.
2. If requested, prepare explanation and documentation to substantiate distribution of overhead costs and other markups.
3. Submit substantiation of a change in scope of Work, if any, claimed in Change Orders related to unit-cost allowances.
4. Owner reserves the right to establish the quantity of work-in-place by independent quantity survey, measure, or count.

B. Submit claims for increased costs due to a change in the scope or nature of the allowance described in the Contract Documents, whether for the purchase order amount or Contractor's handling, labor, installation, overhead, and profit.

1. Do not include Contractor's or subcontractor's indirect expense in the Change Order cost amount unless it is clearly shown that the nature or extent of Work has changed from what could have been foreseen from information in the Contract Documents.
2. No change to Contractor's indirect expense is permitted for selection of higher- or lower-priced materials or systems of the same scope and nature as originally indicated.

PART 2 - PRODUCTS

2.1 EMERGENCY RESPONDER RADIO SIGNAL COVERAGE

A. Once the facility is constructed, sufficient radio signal strength shall be achieved in accordance to IBC 916 and IFC 510. Contractor shall include an allowance of $40,000.00 in bid for possible additional equipment needed.

B. Contractor shall engage qualified company to perform a signal strength survey of all areas, all levels of the facility. Survey to be conducted as early in construction as reasonable once all structural walls / ceilings, building shell, concrete and/or masonry walls / floors / ceilings are in place.

C. If survey finds areas that do not meet the 95% / -95dBm requirements of IFC 510.4.1, the contractor shall furnish and install a bi-directional amplifier system. Repeater antennas shall be installed throughout the facility in areas with insufficient signal strength.

D. If determined an amplifier system is required, Contractor shall prepare a cost proposal and submit for approval. Proposal shall cover the costs of initial survey, purchase, and installation of all equipment, conduits and cabling, labor, final testing, and certifications. Contract amount will be adjusted based on the difference between proposal and allowance.

E. If determined an amplifier system is not required, the cost of the initial survey will be taken out of the allowance and the remainder of the allowance will be credited back to the owner.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

A. Allowance No. 1:
   1. Contractor shall include in the base bid a lump sum of $50,000.00 (Fifty Thousand Dollars and Zero Cents).

END OF SECTION 01 21 00

SECTION 01 21 46 – WEATHER DELAYS

PART 1 - GENERAL

1.1 EXTENSION OF CONTRACT TIME

A. If the basis exists for an extension of time in accordance with paragraph 8.3 of the Conditions, an extension of time on the basis of weather may be granted only for the number of Weather Delay Days in excess of the number of days listed as the Standard Baseline for that month.

1.2 STANDARD BASELINE FOR AVERAGE CLIMATIC RANGE

A. The Owner has reviewed weather data available from the National Oceanic and Atmospheric Administration and determined a Standard Baseline of average climatic range for the State of Tennessee.

B. Standard Baseline shall be regarded as the normal and anticipatable number of calendar days for each month during which construction activity shall be expected to be prevented and suspended by cause of adverse weather. Suspension of construction activity for the number of days each month as listed in the Standard Baseline is included in the Work and is not eligible for extension of Contract Time.

C. Standard Baseline is as follows:

Jan - 12
Feb - 11
Mar - 8
Apr - 7
May - 7
Jun - 6
Jul - 7
Aug - 5
Sep - 4
Oct - 5
Nov - 6
Dec - 11

1.3 ADVERSE WEATHER AND WEATHER DELAY DAYS

A. Adverse Weather is defined as the occurrence of one or more of the following conditions which prevents exterior construction activity or access to the site within twenty-four (24) hours:

B. Precipitation (rain, snow, or ice) in excess of one-tenth inch (0.10") liquid measure

C. Temperatures which do not rise above that specified for the day's construction activity by 10:00 a.m., if any is specified.

D. Sustained wind in excess of twenty-five (25) m.p.h.

E. Standing snow in excess of one inch (1.00")

F. Adverse Weather may include, if appropriate, "dry-out" or "mud" days when all the following conditions are met:

1. For rain days above the standard baseline.
2. Only if there is a hindrance to site access or sitework, such as excavation, backfill, and footings.
3. At a rate no greater than 1 make-up day for each day or consecutive days of rain beyond the standard baseline that total 1.0 inch or more, liquid measure, unless specifically recommended otherwise by the Designer.
4. A Weather Delay Day may be counted if adverse weather prevents work on the project for fifty percent (50%) or more of the contractor's scheduled work, including a weekend day or holiday if Contractor has scheduled construction activity that day.

1.4 DOCUMENTATION AND SUBMITTAL

A. Submit daily jobsite work logs showing which and to what extent construction activities have been affected by weather on a monthly basis.

B. Submit actual weather data to support claim for time extension obtained from nearest NOAA weather station or other independently verified source approved by Designer at beginning of project.

C. Use Standard Baseline data provided in this Section when documenting actual delays due to weather in excess of the average climatic range.

D. Organize claim and documentation to facilitate evaluation on a basis of calendar month periods and submit in accordance with the procedures for Claims established in paragraph 4.3 of the Conditions.

E. If an extension of the Contract Time is appropriate, it shall be affected in accordance with the provisions of Article 7 of the Conditions, and the applicable General Requirements.

PART 2 - PRODUCTS

N/A

PART 3 - EXECUTION

N/A

END OF SECTION 01 21 46

SECTION 01 25 00 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantages to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication, or installation method cannot be provided, if applicable.
b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size,

durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from applicable code organization.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within fifteen (15) days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within fifteen (15) days of receipt of request, or seven (7) days of receipt of additional information or documentation, whichever is later.

    a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
    b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than fifteen (15) days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Requested substitution provides sustainable design characteristics that specified product provided.
c. Substitution request is fully documented and properly submitted.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received within thirty (30) days after the Notice of Award. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include

compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Substitution request is fully documented and properly submitted.
e. Requested substitution will not adversely affect Contractor's construction schedule.
f. Requested substitution has received necessary approvals of authorities having jurisdiction.
g. Requested substitution is compatible with other portions of the Work.
h. Requested substitution has been coordinated with other portions of the Work.
i. Requested substitution provides specified warranty.
j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

END OF SECTION 01 25 00

SECTION 01 26 63 – CHANGE ORDERS

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Promptly implement change order procedures.

B. Provide full written data required to evaluate changes.

C. Maintain detailed records of work done on a time-and-material/force account basis.

D. Provide full documentation to Architect on request.

E. Designate in writing the member of Contractor's organization:

F. Who is authorized to accept changes in the work.

G. Who is responsible for informing others in the Contractor's employ of the authorization of changes in the work.

H. Owner will designate in writing the person who is authorized to execute Change Orders.

1.2 RELATED REQUIREMENTS

A. Agreement: The amounts of established unit prices.

B. Conditions of the Contract:

1. Methods of determining cost or credit to Owner resulting from changes in Work made on a time and material basis.

C. Contractor's claims for additional costs.

D. Specification Section 01 29 76 – Payment Procedures

E. Specification Section 01 78 39 – Project Record Documents

1.3 DEFINITIONS

A. Change Orders: See General Conditions

B. Architect's Supplemental Instructions: A written order, instructions, or interpretations, signed by Architect making minor changes in the Work not involving a change in Contract Sum or Contract Time.

1.4 PRELIMINARY PROCEDURES

A. Owner or Architect may initiate changes by submitting a Proposal Request to Contractor. Request will include:

1. Detailed description of the Change, Products, and location of the change in the Project.
2. Supplementary or revised Drawings and Specifications.
3. The projected time span for making the change and a specific statement as to whether overtime work is, or is not, authorized.
4. A specified period of time during which the requested price will be considered valid.
5. Such request is for information only, and is not an instruction to execute the changes, nor to stop Work in progress.

B. On request, provide additional data to support time and cost computations:

1. Labor required
2. Equipment required

C. Products required:

1. Recommended source of purchase and unit cost
2. Quantities required
3. Taxes, insurance, and bonds
4. Credit for work deleted from Contract, similarly documented
5. Overhead and profit
6. Justification for any change in Contract Time

D. Support each claim for additional costs, and for work done on a time-and-material/force account basis, with documentation as required for a lump-sum proposal, plus additional information.

E. Name of the Owner's authorized agent who ordered the work, and date on the order.

F. Dates and times work was performed, and by whom.

G. Time record, summary of hours worked, and hourly rates paid.

H. Receipts and invoices for:

1. Equipment used, listing dates and times of use.
2. Products used, listing of quantities.
3. Subcontracts.

1.5 PREPARATION OF CHANGE ORDERS

A. Architect will prepare each Change Order

B. Form: Change order: AIA Document G701 – 2001 Change Order

C. Change Order will describe changes in the Work, both deletions, with attachments of revised

D. Contract Documents to define details of the change.

E. Change Order will provide an accounting of the adjustment in the Contract Sum and in the Contract Time.

1.6 LUMP-SUM/FIXED PRICE CHANGE ORDER

A. Content of Change Orders will be based on, either:

1. Architect's Proposal Request and Contractor's responsive Proposal as mutually agreed between Owner and Contractor.
2. Contractor's Proposal for a change, as recommended by Architect.

B. Owner and Architect will sign and date the Change Order as authorization for the Contractor to proceed with the changes.

C. Contractor may sign and date the Change Order to indicate agreement with the terms therein.

1.7 UNIT PRICE CHANGE ORDER

A. Content of Change Orders will be based on, either:

1. Architect's definition of the scope of the required changes.
2. Contractor's Proposal for a change, as recommended by Architect.
3. Survey of complete work.

B. The amount of the unit prices to be:

1. Those stated in the Agreement.
2. Those mutually agreed upon between Owner and Contractor.

C. When quantities of each of the items affected by the Change Order can be determined prior to start of the work:

1. Owner and Architect will sign and date the Change Order as authorization for Contractor to proceed with the changes.
2. Contractor may sign and date the Change Order to indicate agreement with the terms therein.

D. When quantities of the items cannot be determined prior to start of the work:

1. Architect or Owner will issue a construction change authorization directing Contractor to proceed with the change on this basis of unit prices and will cite the applicable unit prices.
2. At completion of the change, Architect will determine the cost of such work based on the unit prices and quantities used. Contractor shall submit documentation to establish the number of units of each item and any claims for a change in Contract Time.
3. Architect will sign and date the Change Order to indicate their agreement with the terms therein.
4. Owner and Contractor will sign and date the Change Order to indicate their agreement with the terms therein.

1.8 CORRELATION WITH CONTRACTOR'S SUBMITTALS

A. Periodically revise Request for Payment forms to record each change as a separate item of Work, and to record the adjusted Contract Sum.

B. Periodically revise the construction Schedule to reflect each change in Contract Time.

C. Upon completion of work under a Change Order, enter pertinent changes in Record Documents.

PART 2 - PRODUCTS

A. N/A

PART 3 - EXECUTION

A. N/A

END OF SECTION 01 26 63

SECTION 01 29 00 – PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Submit Applications for Payment to Architect in accordance with the schedule established by Conditions of the Contract and Agreement between Owner and Contractor.

1.2 FORMAT AND DATA REQUIRED

A. Submit applications typed on AIA Document G702 (or other approved format), Application for Payment, with itemized data typed on 8-1/2" x 11" white paper continuation sheets.

B. Provide itemized data on continuation sheet. Format, schedules, line items and values: Those of the Schedule of Values accepted by Architect.

1.3 PREPARATION OF APPLICATION FOR EACH PROGRESS PAYMENT

A. Application Form:

1. Fill in required information, including that for Change Order executed prior to date of submittal of application.
2. Fill in summary of dollar values to agree with respective totals indicated on continuation sheets.
3. Execute certification with signature of a responsible officer of Contractor's firm.

B. Continuation Sheets:

1. Fill in total list of all scheduled component items of Work, with item number and scheduled dollar value for each item.
2. Fill in dollar value in each column for each scheduled line item when work has been performed or products stored.
3. Round off values to nearest dollar or as specified for Schedule of Values.
4. List each Change Order executed prior to date of submission, at the end of the continuation sheets.
5. List by Change Order Number, and description, as for an original component item of work.

1.4 SUBSTANTIATING DATA FOR PROGRESS PAYMENTS

A. When the Owner or the Architect requires substantiating data, Contractor shall submit suitable information, with a cover letter identifying:

1. Project

2. Application number and date
3. Detailed list of enclosures
4. For stored products:
    a. Item number and identification as shown on application.
    b. Description of specific material.

B. Submit one copy of data and cover letter for each copy of application.

1.5 PREPARATION OF APPLICATION FOR FINAL PAYMENT

A. Fill in Application form as specified for progress payments.

B. Use continuation sheet for presenting the final statement of accounting as specified in Section 01 77 00 – Closeout Procedures.

1.6 SUBMITTAL PROCEDURE

A. Submit Applications for Payment to Architect at the times stipulated in the Agreement.

B. Number: Five copies of each Application.

C. When Architect finds Application properly completed and correct, he will transmit certificate for payment to Owner, with copy to Contractor.

END OF SECTION 01 29 00

SECTION 01 32 16 – CONSTRUCTION PROGRESS SCHEDULE

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Promptly after award of the Contract, prepare and submit to Engineer estimated construction progress schedules for the Work, with sub-schedules of related activities which are essential to its progress.

B. Submit revised progress schedules periodically.

1.2 RELATED REQUIREMENTS

A. Conditions of the Contract.

B. Specification Section 01 11 13 – Summary of Work

1.3 FORM OF SCHEDULES

A. Prepare schedules in the form of a horizontal bar chart.

B. Provide separate horizontal bar for each trade or operation.

C. Horizontal time scale: Identify the first workday of each week.

D. Scale and spacing: To allow space for notations and future revisions.

E. Minimum sheet size: 8-1/2" x 11"

F. Format of listings: The chronological order of the start of each item of work.

G. Identification of listings: By major specification section numbers.

1.4 CONTENT OF SCHEDULES

A. Construction Progress Schedule:

1. Show the complete sequence of construction by activity.

B. Show the dates for the beginning and completion of each major element of construction. Where applicable, specifically list:

1. Clearing.
2. Excavation.
3. Various installations.
4. Subcontractor work.
5. Equipment installation.
6. Landscaping.

C. Show projected percentage of completion for each item, as of the first day of each month.

D. Submittals Schedule for Shop Drawings, Product data and samples. Show:

1. The dates for Contractor's submittals.
2. The dates approved submittals will be required for the Engineer.

E. Provide sub-schedules to define critical portions of prime schedules.

1.5 PROGRESS REVISIONS

A. Indicate progress of each activity to date of submissions.

B. Show changes occurring since previous submission of schedule:

C. Major changes in scope.

D. Activities modified since previous submission.

E. Revised projections of progress and completion.

F. Other identifiable changes.

G. Provide a narrative report as needed to define:

1. Problem areas, anticipated delays, and the impact on the schedule.
2. Corrective action recommended, and its effect.
3. The effect of changes on schedules of other prime contractors.

1.6 SUBMISSIONS

A. Submit initial schedules within fifteen (15) days after award of Contract.

B. Engineer will review schedules and return review copy within ten (10) days after receipt.

C. If required, resubmit within seven (7) days after return of review copy.

D. Submit revised progress schedules with each application for payment.

E. Submit the number of opaque reproductions which the Contractor requires, plus two copies which will be retained by the Engineer.

1.7 DISTRIBUTION

A. Distribute copies of the reviewed schedules to:

1. Job site files
2. Subcontractors
3. Other concerned parties

B. Instruct recipients to report promptly to the Contractor, in writing, any problems anticipated by the projections shown in the schedules.

PART 2 - PRODUCTS

A. N/A

PART 3 - EXECUTION

A. N/A

END OF SECTION 01 32 16

SECTION 01 33 00 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submittals.

B. Related Requirements:

1. Section 01 29 00 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Section 01 31 00 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
3. Section 01 32 16 "Construction Progress Schedule" for submitting schedules and reports, including Contractor's construction schedule.
4. Section 01 40 00 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
5. Section 01 77 00 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
6. Section 01 78 23 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
7. Section 01 78 39 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.3 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.

    a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.

4. Format: Arrange the following information in a tabular format:

    a. Scheduled date for first submittal.
    b. Specification Section number and title.
    c. Submittal Category: Action; informational.
    d. Name of subcontractor.
    e. Description of the Work covered.
    f. Scheduled date for Architect's final release or approval.
    g. Scheduled dates for purchasing.
    h. Scheduled date of fabrication.
    i. Scheduled dates for installation.
    j. Activity or event number.

1.5 SUBMITTAL FORMATS

A. Submittal Information: Include the following information in each submittal:

1. Project name.
2. Date.
3. Name of Architect.
4. Name of Construction Manager.
5. Name of Contractor.
6. Name of firm or entity that prepared submittal.
7. Names of subcontractors, manufacturer, and supplier.
8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
9. Category and type of submittal.

10. Submittal purpose and description.
11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
12. Drawing number and detail references, as appropriate.
13. Indication of full or partial submittal.
14. Location(s) where product is to be installed, as appropriate.
15. Other necessary identification.
16. Remarks.
17. Signature of transmitter.

B. Options: Identify options requiring selection by Architect.

C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.

D. Paper Submittals:

1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
2. Provide a space approximately 6 by 8 inches (150 by 200 mm) on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
3. Action Submittals: Submit three (3) paper copies of each submittal unless otherwise indicated. Architect will return two (2) copies.
4. Informational Submittals: Submit two (2) paper copies of each submittal unless otherwise indicated. Architect will not return copies.
5. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
6. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling.

E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.

F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.

1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.

    a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.

2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
3. Paper: Prepare submittals in paper form and deliver to Architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.

1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.

    a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.

1. Initial Review: Allow fifteen (15) days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
3. Resubmittal Review: Allow fifteen (15) days for review of each resubmittal.
4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow twenty-one (21) days for initial review of each submittal.
5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow fifteen (15) days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.

a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.

D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.

1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

1.7 SUBMITTAL REQUIREMENTS

A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards.
e. Testing by recognized testing agency.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.
h. Availability and delivery time information.

4. For equipment, include the following in addition to the above, as applicable:

a. Wiring diagrams that show factory-installed wiring.
b. Printed performance curves.
c. Operational range diagrams.
d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.

B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.

1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:

    a. Identification of products.
    b. Schedules.
    c. Compliance with specified standards.
    d. Notation of coordination requirements.
    e. Notation of dimensions established by field measurement.
    f. Relationship and attachment to adjoining construction clearly indicated.
    g. Seal and signature of professional engineer if specified.

2. Paper 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 42 inches (750 by 1067 mm).

    a. Two (2) opaque (bond) copies of each submittal. Architect will return one (1) copy.
    b. Three (3) opaque copies of each submittal. Architect will retain two (2) copies; remainder will be returned.

C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.

1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
2. Identification: Permanently attach label on unexposed side of Samples that includes the following:

    a. Project name and submittal number.
    b. Generic description of Sample.
    c. Product name and name of manufacturer.
    d. Sample source.
    e. Number and title of applicable Specification Section.
    f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
5. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.
6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.

a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit one (1) full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured, and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

   a. Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
   b. If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three (3) sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:

    a. Name of evaluation organization.
    b. Date of evaluation.
    c. Time period when report is in effect.
    d. Product and manufacturers' names.
    e. Description of product.
    f. Test procedures and results.

g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit three (3) paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.

1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S REVIEW

A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.

1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.

2. Paper Submittals: Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.

3. Submittals by Web-Based Project Management Software: Architect will indicate, on Project management software website, the appropriate action.

B. Informational Submittals: Architect will review each submittal and will not return it or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.

D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.

E. Architect will return without review submittals received from sources other than Contractor.

F. Submittals not required by the Contract Documents will be returned by Architect without action.

END OF SECTION 01 33 00

SECTION 01 56 00 - TEMPORARY BARRIERS

PART 1 - GENERAL

The General Conditions of the Contract and Supplementary General Conditions of the Contract of this specification are herein made a part of this section of the specifications. The Contractor and subcontractor shall carefully examine all drawings and all sections of the specifications so as to properly coordinate his work with the work of others.

1.1 REQUIREMENTS INCLUDED

A. Furnish, install, and maintain suitable barriers as required to prevent public entry, and to protect the work, existing facilities, trees, and plants from construction operations; remove when no longer needed, or at completion of work.

PART 2 - PRODUCTS

2.1 MATERIALS - GENERAL

A. Materials may be new or used, suitable for the intended purpose, but must not violate requirements of applicable codes and standards.

2.2 FENCING

A. Materials to Contractor's option, minimum fence height 6 feet.

2.3 BARRIERS

A. Materials to Contractor's option, as appropriate to serve required purpose.

PART 3 - EXECUTION

3.1 GENERAL

A. Install facilities of a neat and reasonable uniform appearance, structurally adequate for required purposes.

B. Maintain barriers during entire construction period.

C. Relocate barriers as required by progress of construction.

3.2 FENCES

A. Prior to start of work at the project site, install enclosure fence with suitably locked entrance gates.

B. Locate as shown on drawings.

3.3 TREE AND PLANT PROTECTION

A. Preserve and protect existing trees and plants at site which are designated to remain, and those adjacent to site.

B. Consult with Architect and remove agreed-on roots and branches which interfere with construction.

C. Employ qualified tree surgeon to remove, and to treat cuts.

D. Provide temporary barriers to a height of six feet, around each, or around each group, of trees and plants.

E. Protect root zones of trees and plants:

1. Do not allow vehicular traffic or parking.
2. Do not store materials or products.
3. Prevent dumping of refuse or chemically injurious materials or liquids.
4. Prevent puddling or continuous running water.

F. Carefully supervise excavating, grading, and filling, and subsequent construction operations, to prevent damage.

G. Replace, or suitably repair, trees and plants designated to remain which are damaged or destroyed due to construction operations.

3.4 REMOVAL

A. Completely remove barricades, including foundations, when construction has progressed to the point that they are no longer needed and when approved by the Engineer.

B. Clean and repair damage caused by installation, fill and grade areas of the site to required elevations and slopes, and clean the area.

END OF SECTION 01 56 00

SECTION 01 71 23 – FIELD ENGINEERING

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDED

A. Provide and pay for field engineering services required for the Project.

1. Survey work required in execution of Project.
2. Civil, structural or other professional engineering services specified, or required to execute Contractor's construction methods.

1.2 RELATED REQUIREMENTS

A. Conditions of the Contract

1. Specification Section 01 11 13 – Summary of Work

1.3 QUALIFICATIONS OF SURVEYOR OR ENGINEER

A. Qualified engineer or surveyor, acceptable to Contractor and Owner.

B. Registered professional engineer of the discipline required for the specific service on the Project, if required, licensed in the state in which the project is located.

1.4 SURVEY REFERENCE POINTS

A. Existing basic horizontal and vertical control points for the Project are those designated on drawings.

B. Locate and protect control points prior to starting site work, and reserve all permanent reference points during construction.

1. Make no changes or relocations without prior written notice to Engineer.
2. Require the surveyor to replace project control points which may be lost or destroyed.

C. Establish replacements based on original survey control.

1.5 PROJECT SURVEY REQUIREMENTS

A. Establish a minimum of two permanent bench marks on site, when not present, referenced to data established by survey control points.

1. Record locations, with horizontal and vertical data, on Project Record Documents.

B. Establish lines and levels, locate and lay out, by instrumentation and similar appropriate means:

1. Site improvements.

a. Stakes for grading, fill and topsoil placement.
b. Utility slopes and invert elevations.

2. Batter boards for structures.

a. From time to time, verify layouts by same methods.

1.6 RECORDS

A. Maintain a complete, accurate log of all control and survey work, as it progresses.

1.7 SUBMITTALS

A. Submit name and address of Surveyor and professional engineer to Engineer.

B. On request of Engineer, submit documentation to verify accuracy of field engineering work.

C. Submit certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance, or non-conformance, with Contract Documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 71 23

SECTION 01 74 00 – CLEANING

PART 1 - GENERAL

1.1 The General Conditions of the Contract and Supplementary General Conditions of the contract of this specification are herein made a part of this section of the specifications. The Contractor and subcontractor shall carefully examine all drawings and all sections of the specifications so as to properly coordinate his work with the work of others.

1.2 REQUIREMENTS INCLUDED:

A. Execute cleaning, during progress of the work, and at completion of the work, as required by General Conditions.

1.3 RELATED WORK SPECIFIED ELSEWHERE:

A. Cleaning required for specific trades or work is specified in sections pertaining to that trade or work.

B. Each subcontractor has the responsibility for protecting equipment and finishes at the job site from damages resulting from work under his control, for all cleaning required as a result of his failure to protect equipment and finishes, and for removal of protective covers.

1.4 REQUIREMENTS OF REGULATORY AGENCIES:

A. Safety Standards: Maintain project in accordance with the OSHA safety standards, as stipulated under the Occupational Safety and Health Act of 1970 and printed May 29, 1971, in the Federal Register.

B. Fire Protection: Store volatile waste in covered metal containers, and remove from premises daily.

C. Pollution Control: Conduct cleanup and disposal operations to comply with local ordinances and anti-pollution laws.

D. Burning and burying of rubbish and waste materials on the project site is not permitted.

E. Disposal of volatile fluid wastes (such as mineral spirits, oil, or paint thinner) in storm or sanitary sewer systems or into streams or waterways is not permitted.

PART 2 - PRODUCTS

2.1 Cleaning Materials:

A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.

B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

3.1 DURING CONSTRUCTION:

A. Oversee cleaning and insure that structure and grounds are maintained free from accumulations of waste materials and rubbish.

B. Sprinkle dusty debris with water.

C. Once weekly (or more often as required by accumulation) clean up site and access and dispose of waste materials, rubbish and debris.

D. Provide 55 gallon containers and locate on site for collection of waste materials, rubbish and debris. Provide trash receptacles on each floor of the structure. Each subcontractor is then responsible for collecting and depositing his debris in the collection facilities.

E. Do not allow waste materials, rubbish and debris to accumulate and become an unsightly or hazardous condition.

F. Subcontractors are required to collect and remove from the job site their own liquid waste, asbestos, and other waste requiring special handling for disposal. The Contractor must keep all work areas, passageways, and stairs in and around the project free from debris at all times.

G. Remove waste materials, rubbish and debris from the site and legally dispose of at public or private dumping areas off the Owner's property, at least once a week.

H. Lower waste materials in a controlled manner with as few handlings as possible; do not drop or throw materials from heights.

I. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly-painted surfaces.

3.2 FINAL CLEANING:

A. Use experienced workmen, or professional cleaners for final cleaning.

B. At completion of construction and just prior to acceptance or occupancy, conduct a final inspection of exposed interior and exterior surfaces.

C. Remove grease, dust, dirt, stains, labels, fingerprints, and other foreign materials, from interior and exterior surfaces. Coordinate with requirements specified under the various sections of these specifications.

D. Repair, patch and touch-up marred surfaces to match adjacent finishes. Coordinate with requirements specified under the various sections of these specifications.

E. Broom-clean paved surfaces.

F. Maintain cleaning until the structure, or portion thereof, is occupied by the Owner.

G. At the completion of the work under this contract, all areas and premises where work has been performed (and where access areas have been used) shall be left in the clean condition specified, subject to approval of the Architect/Engineer.

END OF SECTION 01 74 00

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division 0 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. Prior to requesting Architect's/Engineer's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request:

1. In progress payment request, coincident with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete", or list incomplete items, value of incompletion, and reasons for being incomplete.
2. Include supporting documentation for completion as indicated in these contract documents.
3. Submit statement showing accounting of changes to Contract Sum.
4. Advise Owner of pending insurance changeover requirements.
5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications, and similar documents.
6. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, and similar releases.
7. Submit record drawings, maintenance manuals, final project photographs, damage or settlement survey, property survey, and similar final record information.
8. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.
9. Make final changeover of locks and transmit keys to Owner and advise Owner's personnel of changeover in security provisions.

10. Complete startup testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mockups, and similar elements.
11. Complete final cleaning up requirements, including touchup painting of marred surfaces.
12. Touchup and otherwise repair and restore marred exposed finishes.

1.4 INSPECTION PROCEDURES

A. Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punch list" for final acceptance.

1.5 PREREQUISITES TO FINAL ACCEPTANCE

A. Prior to requesting Architect's/Engineer's final inspection for certification of final acceptance and final payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:

1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.
3. Submit certified copy of Architect's/Engineer's final punch list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed, and dated by Architect/Engineer.
4. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of substantial completion or when Owner took possession of and responsibility for corresponding elements of the work.
5. Submit consent of surety.
6. Submit final liquidated damages settlement statement, acceptable to Owner.
7. Revise and submit evidence of final, continuing insurance coverage complying with insurance requirements.
8. Submit copy of Notice of Termination acceptance letter from the Tennessee Department of Environment and Conservation.

1.6 REINSPECTION PROCEDURE

A. Upon receipt of Contractor's notice that the work has been completed, including punch list items resulting from earlier inspections, and accepting incomplete items delayed because of acceptable circumstances, Architect/Engineer will reinspect the work. Upon completion of reinspection, Architect/Engineer will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

1.7 RECORD DOCUMENT SUBMITTALS

A. Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in "Submittals" sections. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire resistive location; provide access to record documents for Architect's/Engineer's reference during normal working hours.

B. Record Drawings

1. Maintain a whiteprint set (blue line or black line) of contract drawings and shop drawings in clean, undamaged condition, with markup of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for markup, record a cross-reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Markup new information, which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at a later date. Note related change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on cover of each set.

C. Record Specifications

1. Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and markup variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of markup, submit to Architect/Engineer for Owner's records.

D. Record Sample Submittal

1. Immediately prior to date(s) of substantial completion, Architect/Engineer (and including Owner's personnel where desired) will meet with Contractor at site and will determine which (if any) of submitted samples maintained by Contractor during progress of the work are to be transmitted to Owner for record purposes. Comply with Architect's/Engineer's instructions for packaging, identification marking, and delivery to Owner's sample storage space.

E. Miscellaneous Record Submittals

1. Refer to other sections of these specifications for requirements of miscellaneous record keeping and submittals in connection with actual performance of the work. Immediately prior to date(s) of substantial completion, complete miscellaneous records, and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Architect/Engineer for Owner's records.

F. Maintenance Manuals

1. Organize maintenance and operating manual information into suitable sets of manageable size and bind into individual binders properly identified and indexed (thumb tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turnaround" cycles, inspection procedures, shop drawings, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

PART 2 - EXECUTION

2.1 CLOSEOUT PROCEDURES

A. General Operating/Maintenance Instructions

B. Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate startup, shutdown, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, energy effectiveness, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds, and similar continuing commitments.

2.2 FINAL CLEANING

A. Special cleaning for specific units of work is specified in sections of Divisions 2 through 16. General cleaning during progress of work is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:

1. Remove labels which are not required as permanent labels.
2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substances which are noticeable as vision obscuring materials. Replace broken glass and damaged transparent materials.
3. Clean exposed exterior and interior hard surfaced finishes, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substances. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.
4. Wipe surfaces of mechanical and electrical equipment clean; remove excess lubrication and other substances.
5. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
6. Clean concrete floors in non-occupied spaces broom clean.
7. Vacuum clean carpeted surfaces and similar soft surfaces.
8. Clean plumbing fixtures to a sanitary condition, free of stains including those resulting from water exposure.
9. Clean food service equipment to a condition of sanitation ready and acceptable for intended food service use.
10. Clean light fixtures and lamps so as to function with full efficiency.
11. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petrochemical spills, and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even textured surface.

2.3 REMOVAL OF PROTECTION

A. Except as otherwise indicated or requested by Architect/Engineer, remove temporary protection devices and facilities which were installed during course of the work to protect previously completed work during remainder of construction period.

2.4 COMPLIANCES

A. Comply with safety standards and governing regulations for cleaning operations. Do not burn waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

B. Where extra materials of value remaining after completion of associated work have become Owner's property, dispose of these to Owner's best advantage as directed.

END OF SECTION 01 77 00

SECTION 01 77 19 – CLOSEOUT REQUIREMENTS

PART 1 - GENERAL

1.1 DATA BINDERS Generally

A. Provide two complete sets. Provide commercial quality three ring binders with durable plastic covers. Identify project and type of data on face and side of binder. If multiple binders are required, identify as consecutively numbered volumes, identifying original documents as set number one. Provide information required by Contract Documents organized as outlined below. Include related documents under the heading to which each is most closely related.

B. Provide introductory information:

1. Cover sheet giving complete project title and number, Contractor's name, address, phone number, name of project superintendent, and related general information.
2. Table of Contents identifying material in Binder and identifying missing materials to be added later or certifying completeness of Binder. Reference and bind separately any over-size documents that cannot be neatly folded and included in this binder.

C. Operating & Maintenance DATA BINDERS

D. Provide Product Data as outlined below:

1. Detailed Table of Contents for this part
2. For each system or product: names, addresses, and telephone numbers of supplier, installer, and maintenance service company; drawing and specification reference; building location; manufacturer and model number.
3. Description of unit and component parts, clearly identifying the specific product or part installed. When manufacturer's cut sheets are used for product identification, plainly mark specific items included in Work and mark out items not included in Work.
4. Related information required by Contract Documents, or furnished with items included in Project, that Owner may use for maintenance, operation, repair, renovation, or additions to Work.

E. Provide Operating and Maintenance Data as outlined below for mechanical and electrical systems, equipment, and products:

1. Detailed Table of Contents for this part
2. Manufacturer's printed operating and maintenance instructions supplemented with drawings and text to clearly illustrate proper operation and a logical sequence of maintenance procedures.
3. Servicing and lubrication schedule with list of lubricants.
4. Manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
5. As-installed control diagrams by controls manufacturer.

6. Installers' coordination drawings with as-installed color-coded piping diagrams and wiring diagrams.
7. Charts of valve tag numbers with the location and function of each valve.
8. Circuit directories of panel boards.
9. Instructions for care, with a list of manufacturer's recommended types of cleaning agents and methods.
10. List materials and parts furnished for the Owner's use.
11. Copy of the list of persons who received demonstration and training.

1.2 PROJECT DATA BINDERS

A. Add to introductory information a complete listing of subcontractors and material suppliers, including dollar amount, company name, address, phone number, local representative, and information regarding minority-owned business status.

B. Provide certificates and acceptance information:

1. Detailed Table of Contents for this part
2. Certificate of Substantial Completion
3. Use and Occupancy Permits
4. Certificate(s) of Inspection or letter(s) of acceptance from:
5. Fire Marshal
6. Department of Labor for boilers, pressure vessels, or elevators
7. Public Health Authorities
8. Other governing authorities as apply
9. Guarantees, warranties, bonds, certifications, maintenance agreements, and related documents
10. Detailed Table of Contents for this part
11. Contractor's warranty of the work
12. Guarantees, warranties, and bonds, executed by the respective vendors, manufacturers, suppliers and subcontractors
13. Certifications
14. Maintenance Agreements and service contracts

C. Complete information for each item:

1. Product or work item, and scope of installation
2. Name of provider, with name of responsible principal, address, and telephone number
3. Beginning date and duration
4. Information about instances which might affect validity, and proper procedure in case of failure

D. Construction Record Documents: The record copy of Contract Documents required by paragraph 3.11 of the Conditions shall be kept in good condition for submittal to Designer upon completion of construction activity. In the course of the Work, Contractor shall legibly mark these documents to record actual conditions of Work, including: location, depth, and identification of new and existing underground items, location by dimension and identification of utilities, valves, tap points, equipment, service access, test points, and related features, field

changes in dimensions and detail, changes by addenda, change orders, and construction change directives, description and details of features for maintenance, service, replacement, or expansion of the Work.

END OF SECTION 01 77 19

DIVISION 3

CONCRETE

SECTION 03 30 00 – CAST IN PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. The extent of concrete work shown on drawings.

1.3 QUALITY ASSURANCE:

A. Codes and Standards: Comply with provisions of following codes, specifications and standards, except where more stringent requirements are shown or specified:

1. ACI 301 "Specifications for Structural Concrete for Buildings."
2. ACI 318 "Building Code Requirements for Reinforced Concrete."
3. Concrete Reinforcing Steel Institute, "Manual of Standard Practice."
4. ACI 315 "Manual of Standard Practice for Detailing Reinforced Concrete Structures."

B. Concrete Testing Service: Employ, at Contractor's expense a testing laboratory acceptable to Designer to perform material evaluation tests and to design concrete mixes.

C. Materials and installed work may require testing and retesting, as directed by Designer, at anytime during progress of work. Allow free access to material stockpiles and facilities. Tests not specifically indicated to be done at Owner's expense, including retesting of rejected materials and installed work, shall be done at Contractor's expense.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's product data with application and installation instructions for proprietary materials and items, including reinforcement (including fibrous reinforcement) and forming accessories, admixtures, fly ash, patching compounds, waterstops, joint systems, curing compounds, and others as requested by Designer.

B. Samples: Submit samples of materials as specified and as otherwise requested by Designer, including names, sources and descriptions.

C. Laboratory Test Reports: Submit laboratory test reports for concrete materials and mix design test as specified.

PART 2 - PRODUCTS

2.1 FORM MATERIALS:

A. Forms for Unexposed Finish Concrete: Form concrete surfaces which will be unexposed in finished structure with plywood, lumber, metal or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

B. Form Coatings: Provide commercial formulation form-coating compounds that will not bond with, stain nor adversely affect concrete surfaces, and will not impair subsequent treatments of concrete surfaces.

2.2 REINFORCING MATERIALS:

A. Reinforcing Bars (ReBar): ANSI/ASTM A 615, Grade 60, deformed (detailed and fabricated in accordance with latest edition of ACI 318 & 315).

B. Welded Wire Fabric (WWF): ANSI/ASTM A 185, welded steel wire fabric.

C. Fibrous Reinforcement: 100 percent virgin polypropylene fibrillated fibers containing no reprocessed olefin materials and specifically manufactured to an optimum gradation for use as concrete secondary reinforcement. Reinforcement shall be equal to Fibermesh Inforce E3 as manufactured by SI Concrete Systems. Refer S1.0 for additional information.

D. Supports for Reinforcement: Provide supports for reinforcement including bolsters, chairs, spacers and other devices for spacing, supporting and fastening reinforcing bars and welded wire fabric in place. Support spacing shall be in accordance with CRSI recommendations and shall be adequate to maintain clearance for reinforcing as indicated or recommended by ACI 318 and CRSI prior to, during and after concrete placement Use wire bar type supports complying with CRSI recommendations, unless otherwise acceptable.

E. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs which are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS:

A. Portland Cement: ANSI/ASTM C 150, Type I, unless otherwise acceptable to Designer.

B. Normal Weight Aggregates: ANSI/ASTM C 33, and as herein specified. Maximum aggregate size 1-1/2".

C. Light Weight Aggregates: ASTM C330, and as herein specified. Maximum aggregate size 1".

D. Limestone Aggregates: Approved aggregate shall be used in all exterior exposed concrete.

E. Water: Potable.

F. Air-Entraining Admixture: ANSI/ASTM C 260.

G. Water-Reducing Admixture: ANSI/ASTM C 494, Type A, and contain not more than 1% chloride ions.

H. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

1. "Eucon WR-75"; Euclid Chemical Co.
2. "Pozzolith 322N"; Master Builders.
3. "Plastocrete 160"; Sika Chemical Corp.
4. "Chemtard"; Chem-Masters Corp.
5. Or Approved Equal.

I. Water Reducing, Accelerator Admixture: ASTM C 494, Type C or E.

J. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

1. "Accelguard HE"; Euclid Chemical Co.
2. "Pozzolith 122-HE"; Master Builders.
3. "Darex"; W.R. Grace.
4. "Sikacrete"; Sika Chemical Co.
5. Or Approved Equal.

K. Calcium chloride: not permitted.

L. Fly ash: ASTM C618, Class F Fly Ash replacing 15-25% of the mass of cementitious material.

2.4 RELATED MATERIALS:

A. Waterstops: Provide flat, dumbbell type or centerbulb type waterstops at construction joints and other joints as shown. Size to suit joints.

B. Polyvinyl chloride (PVC) waterstops: Corps of Engineers CRD-C 572.

C. Moisture Barrier: Provide moisture barrier cover over prepared base material where indicated. Use only materials which are resistant to decay when tested in accordance with ANSI/ASTM E 154, as follows:

D. Polyethylene sheet not less than 6 mils thick.

E. Non-Shrink Grout: CRD-C 621, ASTM C1107 and tested in accordance with ASTM C-827, factory premixed grout.

F. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

1. Type D, Non-metallic, Non-shrink

a. "Masterflow 713"; Master Builders.
b. "Sonogrout"; Sonneborn-Contech.
c. "Euco-NS"; Euclid Chemical Co.
d. "Five Star Grout"; U.S. Grout Co.
e. "Duragrout"; L & M Const. Chemical Co.
f. Or Approved Equal.

G. Chemical Hardener (ChHd-Fn): Colorless aqueous solution containing a blend of magnesium fluosilicate and zinc fluosilicate combined with a wetting agent, containing not less than 2 lbs. of fluosilicates per gal.

H. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

I. Moisture-Retaining Cover: One of the following, complying with ANSI/ASTM C 171.

1. Waterproof paper.
2. Polyethylene film.
3. Polyethylene-coated burlap.

2.5 PROPORTIONING AND DESIGN OF MIXES:

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Designer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing unless otherwise acceptable to Designer.

B. Submit written reports to Designer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until mixes have been reviewed by Designer.

C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:

1. 3000 psi 28-day compressive strength; 480 lbs. cement per cu. yd. minimum; W/C ratio, 0.62 maximum (non-air entrained), 0.57 maximum (air entrained).
2. 3500 psi 28 day compressive strength 520 lbs cement per cu. yd. minimum; w/c ratio .58 maximum (non-air entrained) .52 maximum (air entrained).
3. 4000 psi 28-day compressive strength; 560 lbs. cement per cu. yd. minimum; W/C ratio, 0.54 maximum (non-air entrained), 0.48 maximum (air entrained).

2.6 CONCRETE SCHEDULE:

A. Interior Footings: 4000 psi Non-Air Entrained

B. Exterior or Perimeter Footings: 4000 psi Air Entrained

C. Block Cores Below Grade: 3000 psi Non-Air Entrained

D. Exterior Exposed Piers and Walls: 4000 psi Air Entrained

E. Interior Piers and Walls: 4000 psi Non-Air Entrained

F. Slabs on Grade Interior: 4000 psi Non-Air Entrained

G. Slabs On Grade Exterior: 4000 psi Air Entrained

H. Elevated Slabs: 3500 psi Non-Air Entrained

I. Miscellaneous Exterior Concrete Below Grade: 4000 psi Air Entrained

2.7 ADJUSTMENT TO CONCRETE MIXES:

A. Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as accepted by Designer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Designer before using in work.

2.8 ADMIXTURES:

A. Use water-reducing admixture in all concrete.

B. Use accelerating admixture in concrete slabs placed at ambient temperatures below 50F (10C).

C. Use air-entraining admixture in exterior exposed concrete, unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having air content within following limits:

D. Concrete structures and slabs exposed to freezing and thawing or subjected to hydraulic pressure:

1. 3% to 5% for maximum 2" aggregate.
2. 3% to 7% for maximum 3/4" aggregate.
3. 6% to 8% for maximum ½" aggregate.
4. Other Concrete: 2% to 4% air.

E. Use admixtures for water-reducing and set-control in strict compliance with manufacturer's directions, and Designer's approval.

F. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Footings: Not more than 5”
2. CMU Cores / Voids Below Grade: Not more than 5”
3. Exterior Exposed Piers and Walls: Not more than 5”

4. Interior Piers and Walls: Not more than 5”
5. Interior Slab: Not more than 4”
6. Exterior Slab: Not more than 6”
7. Ramps and sloping surfaces: Not more than 3”

2.9 CONCRETE MIXES:

A. Job-Site Mixing: Mix materials for concrete in appropriate drum type batch machine mixer. For mixers of one cu. yd., or smaller capacity, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released. For mixers of capacity larger than one cu. yd., increase minimum 1-1/2 minutes of mixing time by 15 seconds for each additional cu. yd., or fraction thereof.

B. Provide batch ticket for each batch discharged and used in work, indicating project identification name and number, date, mix type, mix time, quantity, and amount of water introduced.

C. Ready-Mix Concrete: Comply with requirements of ANSI/ASTM C 94, and as herein specified.

D. During hot weather, or under conditions contributing to rapid setting of concrete, a shorter mixing time than specified in ANSI/ASTM C 94 may be required.

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

F. Tempering and Control of Mixing Water: Concrete shall be mixed only in quantities for immediate use. Concrete which has set shall not be retempered, but shall be discarded.

G. When concrete arrives at the project with slump below that suitable for placing, as indicated by the Specifications, water may be added only if neither the maximum permissible water-cement ratio nor the maximum slump is exceeded. The water shall be incorporated by additional mixing equal to at least half of the total mixing required. An addition of water above that permitted by the limitation on water-cement ratio shall be accompanied by a quantity of cement sufficient to maintain the proper water-cement ratio. Such addition shall be authorized by the Designer or his representative.

PART 3 - EXECUTION

3.1 FORMS:

A. Design, erect, support, brace and maintain formwork to support vertical and lateral loads that might be applied until such loads can be supported by concrete structure. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation and position.

B. Design formwork to be readily removable without impact, shock or damage to cast-in-place concrete surfaces and adjacent materials.

C. Construct forms to sizes, shapes, lines and dimensions shown, and to obtain accurate alignment, location, grades, level and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

D. 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 inserts for forming keyways, reglets, recesses, and the like, to prevent swelling and for easy removal.

E. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings on forms at inconspicuous locations.

F. Chamfer, exposed corners and edges as indicated, using wood, metal, PVC or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

G. Form Ties: Factory-fabricated, adjustable-length, removable or snapoff metal form ties, designed to prevent form deflection, and to prevent spalling concrete surfaces upon removal.

H. Unless otherwise indicated, provide ties so portion remaining within concrete after removal is at least 1-1/2" inside concrete.

I. Unless otherwise shown, provide form ties which will not leave holes larger than 1" diameter in concrete surface.

J. 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.

K. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt or other debris just before concrete is placed. Retighten forms and bracing after concrete placement is required to eliminate mortar leaks and maintain proper alignment.

3.2 PLACING REINFORCEMENT:

A. Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars", for details and methods of reinforcement placement and supports, and as herein specified.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials which reduce or destroy bond with concrete.

C. Accurately position, support and secure reinforcement against displacement by formwork construction, or concrete placement operations. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as required to maintain proper clearances.

D. Place reinforcement to obtain at least minimum coverages 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. Corner bars shall be furnished at all intersections of footings, walls and bond beams where continuous reinforcing is required.

F. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset end laps in adjacent widths to prevent continuous laps in either direction.

3.3 JOINTS:

A. Construction Joints: Locate and install construction joints, which are not shown on drawings, so as not to impair strength and appearance of the structure, as acceptable to Designer.

B. Provide keyways at least 1-1/2" deep in construction joints in walls, slabs and between walls and footings; accepted bulkheads designed for this purpose may be used for slabs.

C. Place construction joints perpendicular to the main reinforcement. Continue reinforcement across construction joints.

D. Waterstops: Provide waterstops in construction joints as indicated. Install waterstops to form continuous diaphragm in each joint. Make provisions to support and protect exposed waterstops during progress of work. Fabricate field joints in waterstops in accordance with manufacturer's printed instructions.

E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs on ground and vertical surfaces, such as column pedestals, foundation walls, grade beams and elsewhere as indicated.

F. Joint filler and sealant materials are specified in Division-7 sections of these specifications.

G. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use inserts 1/3 of slab depth, unless otherwise indicated.

H. Contraction joints may be formed by saw cuts of 1/3 the slab thickness as soon after slab finishing without dislodging aggregate, maximum time of 8 hours after concrete placement.

I. Joint sealant material is specified in Division-7 sections of these specifications.

3.4 INSTALLATION OF EMBEDDED ITEMS:

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to, or supported by, cast-in-place concrete. Use setting drawings, diagrams, instructions and directions provided by suppliers of items to be attached thereto.

B. Edge Forms and Screed Strips for Slabs: Set edge forms or bulkheads and intermediate screed strips for slabs to obtain required elevations and contours in finished slab surface. Provide and secure units sufficiently strong to support types of screed strips by use of strike-off templates or accepted compacting type screeds.

3.5 PREPARATION OF FORM SURFACES:

A. Coat contact surfaces of forms with a form-coating compound before reinforcement is placed.

B. Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions. Do not allow excess form-coating material to accumulate in forms or to come into contact with concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

3.6 CONCRETE PLACEMENT:

A. Preplacement Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast-in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work. Moisten wood forms immediately before placing concrete where form coatings are not used.

B. Coordinate the installation of joint materials and moisture barriers with placement of forms and reinforcing steel.

C. General: Comply with ACI 304, and as herein specified.

D. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete which has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete as nearly as practicable to its final location to avoid segregation, maximum free fall of 4' 0". Concrete to be placed with chutes, hoppers, baffles drop pipes or flexible drop chute to avoid segregation as recommended by ACI 304.

E. Placing Concrete in Forms: Deposit concrete in forms in horizontal layers not deeper than 24" and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

F. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spading, rodding or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

G. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6" into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

H. Placing Concrete Slabs: Deposit and consolidate concrete slabs by mechanical vibrating equipment in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

I. Consolidate placed concrete by mechanical vibrating equipment during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners. Use equipment and procedures for consolidation of concrete in accordance with ACI recommended practices.

J. Bring slab surfaces to correct level with straightedge and strikeoff. Use bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

K. Maintain reinforcing in proper position during concrete placement operations.

L. Cold Weather Placing: Protect concrete work from physical damage or reduced strength which could be caused by frost, freezing actions, or low temperatures, in compliance with ACI 306 and as herein specified.

M. When air temperature has fallen to or is expected to fall below 40F (4C), uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50F (l0C), and not more than 80F (27C) at point of placement.

N. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.

O. Do not use calcium chloride, salt and other materials containing antifreeze agents or chemical accelerators, unless otherwise accepted in mix designs.

P. Hot Weather Placing: When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

Q. Cool ingredients before mixing to maintain concrete temperature at time of placement below 90F (32C). Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing.

R. Cover reinforcing steel with water-soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient air temperature immediately before embedment in concrete.

S. Wet forms thoroughly before placing concrete.

T. Use water-reducing retarding admixture (Type D) when required by high temperatures, low humidity, or other adverse placing conditions.

3.7 FINISH OF FORMED SURFACES:

A. Rough Form Finish (RfFm-Fn): For formed concrete surfaces not exposed-to-view in the finish work or by other construction, unless otherwise indicated. This is the concrete surface having texture imparted by form facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4" in height rubbed down or chipped off.

B. Smooth Form Finish (SmFm-Fn): For formed concrete surfaces exposed-to-view, or that are to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, painting or other similar system. This is as-cast concrete surface obtained with selected form facing material, arranged orderly and symmetrically with a minimum of seams. Repair and patch defective areas with fins or other projections completely removed and smoothed.

C. All exposed to view surfaces shall receive a rubbed finish.

3.8 MONOLITHIC SLAB FINISHES:

A. Scratch Finish (Scr-Fn): Apply scratch finish to monolithic slab surfaces that are to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

B. After placing slabs, plane surface to a tolerance not exceeding ½" in 10' when tested with a 10' straightedge. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set, with stiff brushes, brooms or rakes.

C. Float Finish (Flt-Fn): Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified, and slab surfaces which are to be covered with membrane or elastic waterproofing, membrane or elastic roofing, or sand-bed terrazzo, and as otherwise indicated.

D. After screening, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently to permit operation of power- driven floats, or both. Consolidate surface with power- driven floats, or by hand-floating if area is small or inaccessible to power units. Check and level surface plane to a tolerance not exceeding 1/4" in 10' when tested with a 10' straightedge. Cut down high spots and fill low spots. Uniformly slope surface to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

E. Trowel Finish (Tr-Fn): Apply trowel finish to monolithic slab surfaces to be exposed-to-view, and slab surfaces to be covered with resilient flooring, paint or other thin film finish coating system.

F. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of trowel marks, uniform in texture and appearance, and with a surface plane tolerance not exceeding 1/8" in 10' when tested with a 10' straightedge. Grind smooth surface defects which would telegraph through applied floor covering system.

G. Non-Slip Broom Finish (NSBrm-Fn): Apply non-slip broom finish to all exterior concrete, including platforms, steps and ramps, and elsewhere as indicated.

H. Immediately after trowel finishing, slightly roughen concrete surface by brooming with fiber bristle broom perpendicular to main traffic route. Coordinate required final finish with Designer before application.

I. Chemical-Hardener Finish (ChHd-Fn): Apply chemical-hardener finish to interior concrete floors where indicated. Apply liquid chemical-hardener after complete curing and drying of the concrete surface. Dilute liquid hardener with water, and apply in 3 coats; first coat, 1/3 strength; second coat, ½ strength; third coat, 2/3 strength. Evenly apply each coat, and allow 24 hours for drying between coats.

J. Apply proprietary chemical hardeners, in accordance with manufacturer's printed instructions.

K. After final coat of chemical-hardener solution is applied and dried, remove surplus hardener by scrubbing and mopping with water.

L. Finishing of Concrete Containing Fibrous Reinforcement: In addition to finishing methods described above, contractor shall remove all traces of fibrous reinforcement at slab surface as directed by Designer.

3.9 CONCRETE CURING AND PROTECTION:

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting; keep continuously moist for not less than 7 days.

C. Begin final curing procedures immediately following initial curing and before concrete has dried. Continue final curing for at least 7 days in accordance with ACI 301 procedures. Avoid rapid drying at end of final curing period.

D. Curing Methods: Perform curing of concrete by moist curing, by moisture-retaining cover curing, by curing compound, and by combinations thereof, as herein specified.

E. Provide moisture curing by following methods.

1. Keep concrete surface continuously wet by covering with water.
2. Continuous water-fog spray.
3. Covering concrete surface with specified absorptive cover, thoroughly saturating cover with water and keeping continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4" lap over adjacent absorptive covers.

F. Curing, Sealing and Dustproofing Compounds: The compound shall be a clear liquid acrylate-based polymer that contains no oils, saponifiable resins, waxes, or chlorinated rubbers. It shall have a minimum of 30% solids content and have test data from an independent laboratory indicating a maximum moisture loss of 0.030 grams per sq. cm. when applied at a coverage rate of 300 sq. ft. per gallon and tested in accordance with federal specification TT-C-800A. Compound shall be applied in two coats to guarantee sealing and dustproofing. Coverage rate shall be as per manufacturer's recommendation but no more than 300 square feet per gallon, each coat. The compound shall be equal to Sonneborn Kure-N-Seal 30. Contractor to verify compatibility with floor finish specified.

G. Provide moisture-cover curing as follows:

H. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3" and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

I. Curing Formed Surfaces: Cure formed concrete surfaces, including undersides of beams, supported slabs and other similar surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

3.10 SHORES AND SUPPORTS:

A. Comply with ACI 347 for shoring and reshoring in multistory construction, and as herein specified.

B. Extend shoring from ground to roof of structure, unless otherwise permitted.

3.11 REMOVAL OF FORMS:

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of work, may be removed after cumulatively curing at not less than 50F (10C) 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, joints, slabs and other structural elements, may not be removed in less than 14 days and until concrete has attained design minimum compressive strength at 28-days. Determine potential compressive strength

of in-place concrete by testing field-cured specimens representative of concrete location or members.

C. Form-facing material may be removed 4 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.

3.12 RE-USE OF FORMS:

A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated or otherwise damaged form facing material will not be acceptable for exposed surfaces.

B. Apply new form coating compound as specified for new formwork.

C. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Designer.

3.13 MISCELLANEOUS CONCRETE ITEMS:

A. Filling-In: Fill-in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel- troweling surfaces to a hard, dense finish with corners, intersections and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations complying with certified diagrams or templates of manufacturer furnishing machines and equipment.

D. Reinforced Masonry: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

3.14 CONCRETE SURFACE REPAIRS:

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Designer.

B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of

cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water and brush-coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

C. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

D. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Designer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using a template having required slope.

G. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop-outs, honeycomb, rock pockets, and other objectionable conditions.

H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

I. Correct low areas in unformed surfaces during, or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Designer.

J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

K. Repair isolated random cracks and single holes not over 1" 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. Mix dry-pack, 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. Place dry pack after

bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

L. Use epoxy-based mortar for structural repairs, where directed by Designer.

M. Repair methods not specified above may be used, subject to acceptance of Designer.

3.15 QUALITY CONTROL TESTING DURING CONSTRUCTION:

A. The Contractor will employ a testing laboratory to perform all tests and to submit test reports.

B. Sampling and testing for quality control during placement of concrete shall include the following, unless otherwise directed by Designer.

C. Sampling Fresh Concrete: ASTM C 172, except modified for slump to comply with ASTM C 94.

D. Slump: ASTM C 143; one test for each concrete load at point of discharge; and one test for each set of compressive strength test specimens.

E. Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete, ASTM C 231 pressure for normal weight concrete; one for each set of compressive strength test specimens.

F. Concrete Temperature: Test hourly when air temperature is 40 F (4C) and below, and when 80F (27C) and above; and each time a set of compression test specimens made.

G. Compression Test Specimen: ASTM C 31; one set of 6 standard cylinders for each compressive strength test, unless otherwise directed. Mold and store cylinders for laboratory cured test specimens except when field- cure test specimens are required.

H. Compressive Strength Tests: ASTM C 39; one set for each 100 cu. yds. or fraction thereof, of each concrete class placed in any one day or for each 5,000 sq. ft. of surface area placed; 2 specimens tested at 7 days, 3 specimens tested at 28 days, and one specimen retained in reserve for later testing if required.

I. When frequency of testing will provide less than 5 strength tests for a given class of concrete, conduct testing from at least 5 randomly selected batches or from each batch if fewer than 5 are used.

J. When strength of field-cured cylinders is less than 85% of companion laboratory-cured cylinders, evaluate current operations and provide corrective procedures for protecting and curing the in-place concrete.

K. Strength level of concrete will be considered satisfactory if averages of sets of three consecutive strength test results equal or exceed specified compressive strength, and no individual strength test result falls below specified compressive by more than 500 psi.

L. Test results will be reported in writing to Designer and Contractor on same day that tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials; compressive breaking strength and type of break for both 7-day tests and 28-day tests.

M. Chemical-Hardener Finish (ChHd-Fn): Apply chemical-hardener finish to interior concrete floors where characteristics have not been attained in the structure, as directed by Designer. Testing service may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42, or by other methods as directed. Contractor shall pay for such tests conducted, and any other additional testing as may be required, when unacceptable concrete is verified.

N. Batch Ticket Submittal: Contractor shall provide Designer with batch tickets for concrete with fibrous reinforcement showing the amount of reinforcement used in mixes for each pour. Concrete that does not meet specification requirements shall be removed and replaced at the direction of the Designer of record at the contractor's expense.

END OF SECTION 03 30 00

DIVISION 5

METALS

SECTION 05 12 00 – STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Extent of structural steel work is shown on drawings, including schedules, notes and details to show size and location of members, typical connections, and type of steel required.

B. Structural steel is that work defined in AISC "Code of Standard Practice" and as otherwise shown on drawings.

C. Miscellaneous Metal Fabrications are specified elsewhere in Division 5.

1.3 QUALITY ASSURANCE:

A. Codes and Standards: Comply with provisions of following, except as otherwise indicated:

1. AISC "Code of Standard Practice for Steel Buildings and Bridges".
2. AISC "Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings", including "Commentary" and Supplements thereto as issued.
3. AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation.
4. AWS D1.1 "Structural Welding Code".
5. ASTM A 6 "General Requirements for Delivery of Rolled Steel Plates, Shapes, Sheet Piling and Bars for Structural Use".

B. Qualifications for Welding Work

1. Qualify welding processes and welding operators in accordance with AWS "Standard Qualification Procedure".
2. Provide certification that welders to be employed in work have satisfactorily passed AWS qualification tests.
3. If recertification of welders is required, retesting will be Contractor's responsibility.

1.4 CERTIFICATION:

A. Fabricator for structural steel shall be certified by AISC as a Group II Fabricator: Complex steel Building Structures, under the AISC Quality Certification Program. No part of the structural

fabrication may be subcontracted to a shop which does not maintain a minimum of Group II AISC Certification without the prior written consent of the structural engineer.

B. If a fabricator is not certified by AISC they may request to be pre-approved by the Designer prior to bidding. The Designer or Engineer shall visit the fabricator's facility to observe the fabricators operation to include facilities, testing, and quality control. The fabricator requesting pre-approval shall be responsible for all cost incurred by the Designer associated with this request.

1.5 SUBMITTALS:

A. Product Data: Submit producer's or manufacturer's specifications and installation instructions for following products. Include laboratory test reports and other data to show compliance with specifications (including specified standards).

B. Structural steel (each type), including certified copies of mill reports covering chemical and physical properties.

C. High-strength bolts (each type), including nuts and washers.

D. Structural steel primer paint.

E. Shrinkage-resistant grout.

1.6 SHOP DRAWINGS:

A. Submit shop drawings prepared under supervision of a registered professional engineer, including complete details and schedules for fabrication and assembly of structural steel members, procedures and diagrams.

B. Include details of cuts, connections, camber, holes, and other pertinent data. Indicate welds by standard AWS symbols, and show size, length, and type of each weld.

C. Provide setting drawings, templates, and directions for installation of anchor bolts and other anchorages to be installed by others.

D. Test Reports: Submit copies of reports of tests conducted on shop and field bolted and welded connections. Include data on type (s) of tests conducted and test results.

1.7 DELIVERY, STORAGE AND HANDLING:

A. Deliver materials to site at such intervals to insure uninterrupted progress of work.

B. Deliver anchor bolts and anchorage devices, which are to be embedded in cast-in-place concrete or masonry, in ample time to not to delay work.

C. Store materials to permit easy access for inspection and identification. Keep steel members off ground, using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.

D. Do not store materials on structure in a manner that might cause distortion or damage to members or supporting structures. Repair or replace damaged materials or structures as directed.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. Metal Surfaces, General: For fabrication of work which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove such blemishes by grinding, or by welding and grinding, prior to cleaning, treating and application of surface finishes.

B. Plates, Angles, and Bars: ASTM A36

C. Rolled Shapes (Except Angles): ASTM A572, Grade 50.

D. Cold-Formed Steel Tubing: ASTM A 500, Grade B.

E. Hot-Formed Steel Tubing: ASTM A 501.

F. Steel Pipe: ASTM A 53, Type E or S, Grade B.

G. Anchor Bolts: ASTM F1554 (with S1 supplement), grade as indicated. Provide hexagonal heads and nuts for all connections.

H. High-Strength Threaded Fasteners: Heavy hexagon structural bolts, heavy hexagon nuts, and hardened washers, as follows:

I. High Strength Bolts: ASTM A325N, Type 1 (US Manufacturer), typical, unless noted otherwise.

J. High Strength Heavy Hex Nuts (Plain): ASTM A563, Grade C

K. High Strength Heavy Hex Nuts (Galv.): ASTM A563, Grade DH (chase threads)

L. Hardened Steel Washers (Plain): ASTM F436, Type 1

M. Tension Indicating Washers: ASTM F959

N. Through Bolts (Wood Construction): ASTM A307

O. Threaded Tension Rods: ASTM A36 with UNC (Coarse) Threads

P. Turnbuckles: Load rated Turnbuckles with UNC (Coarse) Threads

Q. Headed Studs: ASTM A108, Grade 1015 or 1020, cold finished carbon steel with dimensions complying with AISC

R. Electrodes for Welding: Comply with AWS Code.

S. Structural Steel Primer Paint: Fabricator's standard rust- inhibiting primer.

T. Cement Grout: Portland cement (ASTM C 150, Type I or Type III) and clean, uniformly graded, natural sand (ASTM C 404, Size No. 2). Mix at a ratio of 1.0 part cement to 3.0 parts sand, by volume, with minimum water required for placement and hydration.

U. Non-metallic Shrinkage-Resistant Grout: Pre-mixed, non- metallic, non-corrosive, non-staining product containing selected silica sands, Portland cement, shrinkage compensating agents, plasticizing and water reducing agents, complying with CRD-C621.

V. Available Products: Subject to compliance with requirements, products which may be incorporated in the work include, but are not limited to, the following:

1. Euco N.C.; Euclid Chemical Co.
2. Crystex; L&M Construction Chemicals
3. Masterflow 713; Master Builders
4. Five Star Grout; U.S. Grout Corp.
5. Upcon; Upco Chem. Div., USM Corp.
6. Propak; Protex Industries, Inc.

2.2 FABRICATION:

A. Shop Fabrication and Assembly

1. Fabricate and assemble structural assemblies in shop to greatest extent possible. Fabricate items of structural steel in accordance with AISC Specifications and as indicated on final shop drawings. Provide camber in structural members where indicated.
2. Quenched and tempered medium-carbon steel bolts, nuts and washers, complying with ASTM A 325.
3. Properly mark and match-mark materials for field assembly. Fabricate for delivery sequence which will expedite erection and minimize field handling of materials.
4. Where finishing is required, complete assembly, including welding of units, before start of finishing operations. Provide finish surfaces of members exposed in final structure free of markings, burrs, and other defects.

B. Connections

1. Weld or bolt shop connections, as indicated.
2. Bolt field connections, except where welded connections or other connections are indicated.
3. Provide high-strength threaded fasteners for principal bolted connections.

4. Provide unfinished threaded fasteners for only bolted connections of secondary framing members to primary members (including purlins, girts, and other framing members taking only nominal stresses) and for temporary bracing to facilitate erection.
5. High-Strength Bolted Construction: Install high-strength threaded fasteners in accordance with AISC "Specifications for Structural Joints using ASTM A 325 or A 490 Bolts" (RCRBSJ).

C. Welded Construction

1. Comply with AWS Code for procedures, appearance and quality of welds, and methods used in correcting welding work.
2. Assemble and weld built-up sections by methods which will produce true alignment of axes without warp.

D. Steel Wall Framing

1. Select members which are true and straight for fabrication of steel wall framing.
2. Build up welded door frames attached to structural steel framing. Weld exposed joints continuously and grind smooth. Plug weld steel bar stops to frames, except where shown removable. Secure removable stops to frames with countersunk, cross-recessed head machine screws, uniformly spaced not more than 10" o.c., unless otherwise indicated.

E. Holes for Other Work

1. Provide holes required for securing other work to structural steel framing, and for passage of other work through steel framing members, as shown on final shop drawings.
2. Provide threaded nuts welded to framing, and other specialty items as indicated to receive other work.
3. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame cut holes or enlarge holes by burning. Drill holes in bearing plates.

2.3 SHOP PAINTING:

A. General

1. Shop paint structural steel, except those members or portions of members to be embedded in concrete or mortar. Paint embedded steel which is partially exposed on exposed portions and initial 2" of embedded areas only. Structural steel items that are to have fireproofing applied shall be unpainted and unprimed (coordinate with Designer).
2. Apply 2 coats of paint to surfaces which are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

B. Surface Preparation

1. After inspection and before shipping, clean steelwork to be painted. Remove loose rust, loose mill scale, and spatter, slag or flux deposits.
2. Clean steel in accordance with Steel Structures Painting Council (SSPC) as follows:

    a. SP-1 “Solvent Cleaning".
    b. SP-2 “Hand Tool Cleaning".
    c. SP-3 “Power Tool Cleaning".
    d. SP-7 “Brush-off Blast Cleaning".

C. Painting: Immediately after surface preparation, apply structural steel primer paint in accordance with manufacturer's instructions and at a rate to provide dry film thickness of not less than 1.5 mils. Use painting methods which result in full coverage of joints, corners, edges, and exposed surfaces.

PART 3 - EXECUTION

3.1 ERECTION:

A. Surveys

1. Employ a registered professional engineer or land surveyor for accurate erection of structural steel.

B. Check elevations of concrete and masonry bearing surfaces, and locations of anchor bolts and similar devices, before erection work proceeds, and report discrepancies to Designer.

C. Do not proceed with erection until corrections have been made, or until compensating adjustments to structural steel work have been agreed upon with Designer.

D. Temporary Shoring and Bracing

1. Provide temporary shoring and bracing members with connections of sufficient strength to bear imposed loads.
2. Remove temporary members and connections when permanent members are in place and final connections are made.
3. Provide temporary guy lines to achieve proper alignment of structures as erection proceeds.

E. Temporary Planking: Provide temporary planking and working platforms as necessary to effectively complete work.

F. Anchor Bolts

1. Furnish anchor bolts and other connectors required for securing structural steel to foundations and other in-place work.
2. Furnish templates and other devices as necessary for presetting bolts and other anchors to accurate locations.

3. Refer to Division 3 of these specifications for anchor bolt installation requirements in concrete, and Division 4 for masonry installation.

G. Setting Bases and Bearing Plates

1. Clean concrete and masonry bearing surfaces of bond-reducing materials and roughen to improve bond to surfaces. Clean bottom surface of base and bearing plates.
2. Set loose and attached base plates and bearing plates for structural members on wedges or other adjusting devices.
3. Tighten anchor bolts after supported members have been positioned and plumbed. Do not remove wedges or shims, but if protruding, cut off flush with edge of base or bearing plate prior to packing with grout.
4. Pack grout solidly between bearing surfaces and bases or plates to ensure that no voids remain. Finish exposed surfaces, protect installed materials, and allow curing.
5. For proprietary grout materials, comply with manufacturer's instructions.

H. Field Assembly

1. Set structural frames accurately to lines and elevations indicated. Align and adjust various members forming part of complete frame or structure before permanently fastening. Clean bearing and other surfaces which will be in permanent contact before assembly. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
2. Level and plumb individual members of structure within specified AISC tolerances.

I. Establish required leveling and plumbing measurements on mean operating temperature of structure. Make allowances for difference between temperature at time of erection and mean temperature at which structure will be when completed and in service.

J. Splice members only where indicated and accepted on shop drawings.

K. Erection Bolts: On exposed welded construction, remove erection bolts, fill holes with plug welds and grind smooth at exposed surfaces.

L. Comply with AISC Specifications for bearing, adequacy of temporary connections, alignment, and removal of paint on surfaces adjacent to field welds.

M. Do not enlarge holes in members by burning or by use of drift pins, except in secondary bracing members. Ream holes that must be enlarged to admit bolts.

N. Gas Cutting

1. Do not use gas cutting torches in field for correcting fabrication errors in primary structural framing.
2. Cutting will be permitted only on secondary members which are not under stress, as acceptable to Designer.
3. Finish gas-cut sections equal to a sheared appearance when permitted.

O. Touch-Up Painting

1. Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint.
2. Apply paint to exposed areas using same material as used for shop painting.
3. Apply by brush or spray to provide minimum dry film thickness of 1.5 mils.

3.2 QUALITY CONTROL:

A. Engage an independent testing and inspection agency to inspect high-strength bolted connections and welded connections and to perform tests and prepare test reports.

B. Testing agency shall conduct and interpret tests and state in each report whether test specimens comply with requirements, and specifically state any deviations therefrom.

C. Provide access for testing agency to places where structural steel work is being fabricated or produced so that required inspection and testing can be accomplished.

D. Testing agency may inspect structural steel at plant before shipment; however, Designer reserves right, at any time before final acceptance, to reject material not complying with specified requirements.

E. Correct deficiencies in structural steel work which inspections and laboratory test reports have indicated to be not in compliance with requirements. Perform additional tests, at Contractor's expense, as may be necessary to reconfirm any non-compliance of original work, and as may be necessary to show compliance of corrected work.

F. Shop Bolted Connections: Inspect in accordance with AISC specifications.

G. Shop Welding: Inspect and test during fabrication of structural steel assemblies, as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.
3. Perform tests of welds as follows. Inspection procedures listed are to be used at Contractor's option.
4. Liquid Penetrant Inspection: ASTM E 165.
5. Magnetic Particle Inspection: ASTM E 109; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not acceptable.
6. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2-2T".
7. Ultrasonic Inspection: ASTM E 164.
8. Field Bolted Connections: Inspect in accordance with AISC specifications.

H. Field Welding: Inspect and test during erection of structural steel as follows:

1. Certify welders and conduct inspections and tests as required. Record types and locations of defects found in work. Record work required and performed to correct deficiencies.
2. Perform visual inspection of all welds.

3. Perform tests of welds as follows: All full penetration field welds at moment and torsion connections shall be tested.
4. Liquid Penetrant Inspection: ASTM E 165.
5. Magnetic Particle Inspection: ASTM E 109; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not acceptable.
6. Radiographic Inspection: ASTM E 94 and ASTM E 142; minimum quality level "2- 2T".
7. Ultrasonic Inspection: ASTM E 164.

END OF SECTION 05 12 00

SECTION 05 51 13 - METAL PAN STAIRS/RAILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Preassembled steel stairs with concrete-filled treads.
2. Steel tube railings attached to metal stairs.

1.2 ACTION SUBMITTALS

A. Product Data: For metal pan stairs.

B. LEED Submittals:

1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content. Include statement indicating cost for each product having recycled content.
2. Laboratory Test Reports for Credit IEQ 4.2: For primers, documentation indicating that products comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

D. Delegated-Design Submittal: For stairs and railings, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. <Double click here to find, evaluate, and insert list of manufacturers and products.>

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design stairs and railings.

B. Structural Performance of Stairs: Metal stairs shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:

1. Uniform Load: 100 lbf/sq. ft. (4.79 kN/sq. m).
2. Concentrated Load: 300 lbf (1.33 kN) applied on an area of 4 sq. in. (2580 sq. mm).
3. Uniform and concentrated loads need not be assumed to act concurrently.
4. Stair Framing: Capable of withstanding stresses resulting from railing loads in addition to loads specified above.

C. Structural Performance of Railings: Railings 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. (0.73 kN/m) applied in any direction.
    b. Concentrated load of 200 lbf (0.89 kN) applied in any direction.
    c. Uniform and concentrated loads need not be assumed to act concurrently.

2. Infill of Guards:

    a. Concentrated load of 50 lbf (0.22 kN) applied horizontally on an area of 1 sq. ft. (0.093 sq. m).
    b. Infill load and other loads need not be assumed to act concurrently.

D. Seismic Performance of Stairs: Metal stairs shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. Component Importance Factor: 1.5.

2.3 METALS

A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For components exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

B. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of pre-consumer recycled content not less than TEN percent.

C. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.

D. Steel Tubing: ASTM A 513.

E. Uncoated, Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, structural steel, Grade 25 (Grade 170), unless another grade is required by design loads; exposed.

F. Uncoated, Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, structural steel, Grade 30 (Grade 205), unless another grade is required by design loads.

G. Expanded-Metal, Carbon Steel: ASTM F 1267, Type I (expanded), Class 1 (uncoated).

1. Style Designation: 1-1/2 number 10.

H. Perforated Metal: Cold-rolled steel sheet, ASTM A 1008/A 1008M, or hot-rolled steel sheet, ASTM A 1011/A 1011M, commercial steel Type B, 0.060 inch (1.52 mm) thick, with 1/4-inch (6.4-mm) holes in staggered rows.

1. <Double click here to find, evaluate, and insert list of manufacturers and products.>

I. Woven-Wire Mesh: Intermediate-crimp, [**diamond**] [**square**] pattern, 2-inch (50-mm) woven-wire mesh, made from 0.135-inch (3.5-mm) nominal diameter wire complying with ASTM A 510 (ASTM A 510M).

2.4 ABRASIVE NOSINGS

A. Cast-Metal Units: Cast iron, with an integral abrasive, as-cast finish.

1. <Double click here to find, evaluate, and insert list of manufacturers and products.>

B. Extruded Units: Aluminum units with abrasive filler in an epoxy-resin binder.

1. <Double click here to find, evaluate, and insert list of manufacturers and products.>

2. Provide ribbed units, with abrasive filler strips projecting 1/16 inch (1.5 mm) above aluminum extrusion.
3. Provide solid-abrasive-type units without ribs.

C. Provide anchors for embedding units in concrete, either integral or applied to units, as standard with manufacturer.

D. Apply bituminous paint to concealed surfaces of cast-metal units set into concrete.

E. Apply clear lacquer to concealed surfaces of extruded units set into concrete.

2.5 FASTENERS

A. Provide zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 12 for exterior use, and Class Fe/Zn 5 where built into exterior walls. Select fasteners for type, grade, and class required.

2.6 MISCELLANEOUS MATERIALS

A. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Public Health's (formerly, the California Department of Health Services') "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

B. Shop Primers: Provide primers that comply with Section 09 91 13 – Exterior Painting and Section 09 96 00 – High-Performance Coatings.

C. Universal Shop Primer: Fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

D. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187/D 1187M.

E. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi (20 MPa) unless otherwise indicated.

F. Welded Wire Reinforcement: ASTM A 185/A 185M, 6 by 6 inches (152 by 152 mm), W1.4 by W1.4, unless otherwise indicated.

2.7 PRECAST CONCRETE TREADS

A. Concrete Materials and Properties: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, ready-mixed concrete with a minimum 28-day compressive strength of 5000 psi (35 MPa) and a total air content of not less than 4 percent or more than 6 percent.

B. Reinforcement: Galvanized, welded wire reinforcement, 2 by 2 inches (50 by 50 mm) by 0.062-inch- (1.6-mm-) diameter wire; comply with ASTM A 185/A 185M and ASTM A 82/A 82M, except for minimum wire size.

2.8 FABRICATION, GENERAL

A. Provide complete stair assemblies, including metal framing, hangers, struts, railings, clips, brackets, bearing plates, and other components necessary to support and anchor stairs and platforms on supporting structure.

1. Join components by welding unless otherwise indicated.
2. Use connections that maintain structural value of joined pieces.

B. Preassembled Stairs: Assemble stairs in shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation.

C. 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.

D. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.

E. Weld connections to comply with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Weld exposed corners and seams continuously unless otherwise indicated.
5. At exposed connections, finish exposed welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 3 welds: partially dressed weld with spatter removed.

F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Locate joints where least conspicuous.

2.9 STEEL-FRAMED STAIRS

A. NAAMM Stair Standard: Comply with "Recommended Voluntary Minimum Standards for Fixed Metal Stairs" in NAAMM AMP 510, "Metal Stairs Manual," Commercial Class, unless more stringent requirements are indicated.

B. Stair Framing:

1. Fabricate stringers of steel plates.

    a. Provide closures for exposed ends of channel stringers.

2. Construct platforms of steel plate headers and miscellaneous framing members as needed to comply with performance requirements.
3. Weld stringers to headers; weld framing members to stringers and headers.
4. Where stairs are enclosed by gypsum board assemblies, provide hanger rods or struts to support landings from floor construction above or below. Locate hanger rods and struts where they do not encroach on required stair width and are within the fire-resistance-rated stair enclosure.
5. Where masonry walls support metal stairs, provide temporary supporting struts designed for erecting steel stair components before installing masonry.

C. Metal Pan Stairs: Form risers, sub-tread pans, and sub-platforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.067 inch (1.7 mm).

D. Abrasive-Coating-Finished, Formed-Metal Stairs: Form risers, treads, and platforms to configurations shown from steel sheet of thickness needed to comply with performance requirements, but not less than 0.097 inch (2.5 mm).

2.10 STAIR RAILINGS

A. Steel Tube Railings: Fabricate railings to comply with requirements indicated for design, dimensions, details, finish, and member sizes, including wall thickness of tube, post spacings, and anchorage, but not less than that needed to withstand indicated loads.

1. Rails and Posts: 1-5/8-inch- (41-mm-) diameter top and bottom rails.
2. Picket Infill: 1/2-inch- (13-mm-) round pickets spaced less than 4 inches (100 mm) clear.
3. Expanded-Metal Infill: Expanded-metal panels edged with U-shaped channels made from steel sheet and not less than 0.043 inch (1.1 mm) thick. Orient expanded metal with long dimension of diamonds parallel to top rail.
4. Perforated-Metal Infill: Perforated-metal panels edged with U-shaped channels made from metal sheet, of same metal as perforated metal, and not less than 0.043 inch (1.1 mm) thick. Orient perforated metal with pattern parallel to top rail.
5. Mesh Infill: Woven wire mesh crimped into 1-by-1/2-by-1/8-inch (25-by-13-by-3-mm) steel channel frames. Orient wire mesh with diamonds vertical.
6. Intermediate Rails Infill: 1-5/8-inch- (41-mm-) diameter.

B. Welded Connections: Fabricate railings with 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. Finish welds to comply with NOMMA's "Voluntary Joint Finish Standards" for Type 3 welds: partially dressed weld with spatter removed as shown in NAAMM AMP 521.

C. Form changes in direction of railings by bending or by inserting prefabricated elbow fittings.

D. 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.

E. Close exposed ends of railing members with prefabricated end fittings.

F. Provide wall returns at ends of wall-mounted handrails.

G. Connect posts to stair framing by direct welding.

H. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, end closures, flanges, miscellaneous fittings, and anchors for interconnecting components and for attaching to other work.

I. Fillers: Provide fillers made from steel plate, or other suitably crush-resistant material, where needed to transfer wall bracket loads through wall finishes to structural supports. Size fillers to suit wall finish thicknesses.

2.11 FINISHES

A. Finish metal stairs after assembly.

B. Preparation for Shop Priming: Prepare uncoated ferrous-metal surfaces to comply with SSPC-SP 3, "Power Tool Cleaning."

C. Apply shop primer to uncoated surfaces of metal stair components, except those with galvanized finishes and those to be embedded in concrete or masonry unless otherwise

indicated. Comply with SSPC-PA 1, "Paint Application Specification No. 1: Shop, Field, and Maintenance Painting of Steel," for shop painting.

PART 3 - EXECUTION

3.1 INSTALLING METAL PAN STAIRS

A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal stairs. Set units accurately in location, alignment, and elevation, measured from established lines and levels and free of rack.

B. Install metal stairs by welding stair framing to steel structure or to weld plates cast into concrete unless otherwise indicated.

C. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints.

D. Field Welding: Comply with requirements for welding in "Fabrication, General" Article.

E. Place and finish concrete fill for treads and platforms to comply with Section 033000 "Cast-in-Place Concrete."

1. Install abrasive nosings with anchors fully embedded in concrete.

F. Install precast concrete treads with adhesive supplied by manufacturer.

3.2 INSTALLING RAILINGS

A. Adjust railing systems before anchoring to ensure matching alignment at abutting joints. Space posts at spacing indicated or, if not indicated, as required by design loads. Plumb posts in each direction. Secure posts and rail ends to building construction as follows:

1. Anchor posts to steel by welding to steel supporting members.
2. Anchor handrail ends to concrete and masonry with steel round flanges welded to rail ends and anchored with postinstalled anchors and bolts.

B. Attach handrails to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads. Secure wall brackets to building construction as required to comply with performance requirements.

3.3 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 same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.

END OF SECTION 05 51 13

DIVISION 7

THERMAL / MOISTURE

PROTECTION

SECTION 07 71 23 – GUTTERS AND DOWNSPOUTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Gutters and Downspouts.

B. Related Accessories.

1.2 REFERENCES

A. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

B. SMACNA - Architectural Sheet Metal Manual.

1.3 DESIGN / PERFORMANCE REQUIREMENTS

A. Conform to applicable code for size and method of rain water discharge.

B. American Architectural Manufacturers Association (AAMA) Specification 1405.1 "Specification for Aluminum Rain-carrying Systems".

C. FHA Minimum Property Standard 4900.1 for One- and Two-Family Dwellings.

D. FHA Minimum Property Standard 4910.1 for Multi-Family Dwellings.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 33 00.

B. Product Data: Manufacturer's catalog data, detail sheets, and specifications.

C. Shop Drawings: Prepared specifically for this project; showing dimensions of metal gutters and accessories, fastening details and connections and interface with other products.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square, representing actual product, color, and patterns.

F. Manufacturer's Certificates: Certify products meet or exceed specified requirements.

G. Manufacturers warranties.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications:

B. Installer Qualifications: Certified and approved installer of the sheet metal roofing manufacturer.

C. Perform Work in accordance with SMACNA Manual.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store products to prevent twisting, bending, and abrasion, and to provide ventilation. Slope stored materials to drain.

C. During storage prevent contact with materials capable of causing discoloration, staining, or other damage.

1.7 PROJECT CONDITIONS

A. Coordinate installation with installation of adjacent roofing, siding and related materials.

1.8 WARRANTY

A. Provide the Manufacturer's Limited 20-Year, pro-rated and non-transferable Warranty covering labor materials.

1.9 COORDINATION

A. Coordinate Work with other operations and installation of floor finish materials to avoid damage to installed underlayment and membrane materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: Englert, Inc. Or Equal

2.2 COMPONENTS

A. Gutters: Aluminum sheet, ASTM B 209, Alloy 3105-H24. Minimum tensile strength 26,000 psi, minimum yield strength 25,000 psi or equivalent. Continuous and seamless sheet aluminum, roll formed.

1. Thickness:

    a. 0.032 inch.

2. Size:

    a. 6”

B. Downspouts: Aluminum sheet, ASTM B 209, Alloy 3105-H24. Minimum tensile strength 26,000 psi, minimum yield strength 25,000 psi or equivalent.

1. Thickness:

    a. 0.019 inch.

2. Size:

    a. 3 inches by 4 inches.

C. Scupper Collector Head: Aluminum sheet, ASTM B209, Alloy 3105-H24. Minimum tensile strength 26,000 psi, minimum yield strength 25,000 psi or equivalent.

1. Thickness:

    a. 0.019 inch.

2. Size:

    a. As shown on drawings.

D. Endcaps: Aluminum sheet, ASTM B 209, Alloy 3105-H24, thickness 0.027 inch (0.69 mm).

E. Inside and Outside Mitres: Aluminum sheet, ASTM B 209, Alloy 3105-H24, thickness 0.027 inch (0.69 mm).

F. Gutter Hangers and Anchors: Aluminum sheet, ASTM B 209, Alloy 3105-H24, thickness 0.063 inch (1.60 mm). Provide types required to suit project requirements.

G. Downspout Anchors: Aluminum. Provide types required to suit project requirements.

H. Elbows: Aluminum sheet, ASTM B 209, Alloy 3105-H24. Minimum tensile strength 26,000 psi, minimum yield strength 25,000 psi or equivalent.

1. Thickness:

a. 0.019 inch (0.48 mm).

2. Size: To match downspouts.

I. Aluminum Finish: Kynar 500, two-coat system applied in a continuous baked-on process in a single operation, comprising of an acid-based primer and baked-on high performance linear polyester topcoat on exposed surfaces. Concealed surfaces finished with a polyester gold backer or wash coat.

1. Color: To be selected by Architect from Manufacturers full range.

J. Sealant: Provide as specified in Section 07 92 00.

K. Fasteners: Same material and finish as gutters and downspouts.

2.3 FABRICATION

A. Continuously form seamless gutters to the profiles and sizes specified.

B. Form downspouts of profiles and sizes specified.

C. Hem exposed edges of metal.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. Verify governing dimensions at building.

C. Verify surfaces are ready to receive gutters and downspouts.

D. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Clean and repair if necessary any adjoining work on which this work is in any way dependent for its proper installation.

C. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Install gutters using appropriate hangers to allow normal expansion and contraction.

C. Install gutter hangers using two 1-1/4 inch (32 mm) screw shank nails and fastened into solid lumber.

D. All gutters shall be in continuous length for each elevation (run). No end laps are allowed.

E. Exercise care in placing aluminum in contact with other dissimilar metals or materials that are not compatible with aluminum.

F. Providing adequate insulation/separation where ever necessary, such as by painting or otherwise protecting when they are in contact with aluminum or when drainage from them passes over aluminum surfaces.

G. Install sealants where indicated to clean dry surfaces only without skips or voids.

3.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07 71 23

DIVISION 9

FINISHES

SECTION 09 91 23 - PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS:

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division-1 Specification sections, apply to work of this section.

1.2 DESCRIPTION OF WORK:

A. Extent of painting work is indicated on drawings and schedules, and as herein specified.

B. Work includes painting and finishing of interior exposed items and surfaces throughout project, except as otherwise indicated.

C. Surface preparation, priming and coats of paint specified are in addition to shop- priming and surface treatment specified under other sections of work.

D. "Paint" as used herein means all coating systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats.

E. Surfaces to be Painted: Except where natural finish of material is specifically noted as a surface not to be painted, paint exposed surfaces whether or not colors are designated in "schedules". Where items or surfaces are not specifically mentioned, paint the same as similar adjacent materials or areas. If color or finish is not designated, Designer will select these from standard colors or finishes available.

F. Following categories of work are not included as part of field-applied finish work.

1. Pre-Finished Items: unless otherwise indicated, do not include painting when factory-finishing or installer- finishing is specified for such items as (but not limited to) metal toilet enclosures, pre-finished partition systems, acoustic materials and finished mechanical and electrical equipment, including light fixtures, switchgear and distribution cabinets.
2. Concealed Surfaces: Unless otherwise indicated, painting is not required on surfaces such as walls or ceilings in concealed areas and generally inaccessible areas, foundation spaces, furred areas, utility tunnels, pipe spaces, duct shafts and elevator shafts.
3. Finished Metal Surfaces: Unless otherwise indicated, metal surfaces of anodized aluminum, stainless steel, chromium plate, copper, bronze and similar finished materials will not require finish painting.
4. Operating Parts: Unless otherwise indicated, moving parts of operating units, mechanical and electrical parts, such as valve and damper operators, linkages, sinkages, sensing devices, motor and fan shafts will not require finish painting.

G. Following categories of work are included under other sections of these specifications:

1. Shop Priming: Unless otherwise specified, shop priming of ferrous metal items is included under various sections for structural steel, metal fabrications, hollow metal work and similar items.

a. Unless otherwise specified, shop priming of fabricated components such as architectural woodwork, wood casework and shop- fabricated or factory-built mechanical and electrical equipment or accessories is included under other sections of these specifications.

H. Mechanical and Electrical Work: Painting of mechanical and electrical work is specified in Divisions 23 and 26, respectively.

I. Do not paint over any code-required labels, such as Underwriters' Laboratories and Factory Mutual, or any equipment identification, performance rating, name, or nomenclature plates.

1.3 QUALITY ASSURANCE:

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

B. Coordination of Work: Review other sections of these specifications in which prime paints are to be provided to ensure compatibility of total coatings system for various substrates. Upon request from other trades, furnish information or characteristics of finish materials provided for use, to ensure compatible prime coats are used.

1.4 SUBMITTALS:

A. Product Data: Submit manufacturer's technical information including paint label analysis and application instructions for each material proposed for use.

B. Samples: Prior to beginning work, Designer will furnish color chips for surfaces to be painted. Use representative colors when preparing samples for review. Submit samples for Designer's review of color and texture only. Provide a listing of material and application for each coat of each finish sample.

C. On actual wood surfaces, provide two 4" x 8" samples of natural and stained wood finish. Label and identify each as to location and application.

D. On concrete masonry, provide two 4" square samples of masonry for each type of finish and color, defining filler, prime and finish coat.

1.5 DELIVERY AND STORAGE:

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, and following information:

1. Name or title of material.
2. Fed. Spec. number, if applicable.
3. Manufacturer's stock number and date of manufacturer.
4. Manufacturer's name.
5. Contents by volume, for major pigment and vehicle constituents.
6. Thinning instructions.
7. Application instructions.
8. Color name and number.

B. Store materials not in actual use in tightly covered containers. Maintain containers used in storage of paint in a clean condition, free of foreign materials and residue.

C. Protect from freezing where necessary. Keep storage area neat and orderly. Remove oily rags and waste daily. Take all precautions to ensure that workmen and work areas are adequately protected from fire hazards and health hazards resulting from handling, mixing and application of paints.

1.6 PROJECT CONDITIONS:

A. Apply water-base paints only when temperature of surfaces to be painted and surrounding air temperatures are between 50°F (10°C) and 90°F (32°C), unless otherwise permitted by paint manufacturer's printed instructions.

B. Apply solvent-thinned paints only when temperature of surfaces to be painted and surrounding air temperatures are between 45°F (7°C) and 95°F (35°C), unless otherwise permitted by paint manufacturer's printed instructions.

C. Do not apply paint in snow, rain, fog or mist, or when relative humidity exceeds 85%, or to damp or wet surfaces, unless otherwise permitted by paint manufacturer's printed instructions.

D. Painting may be continued during inclement weather if areas and surfaces to be painted are enclosed and heated within temperature limits specified by paint manufacturer during application and drying periods.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS:

A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products, which may be incorporated in the work, include, but are not limited to, the following:

1. Sherwin Williams
2. PPG Paints

2.2 MATERIALS:

A. Material Quality: Provide best quality grade of various types of coatings as regularly manufactured by acceptable paint materials manufacturers. Materials not displaying manufacturer's identification as a standard, best-grade produce will not be acceptable.

B. Proprietary names used to designate colors or materials are not intended to imply that products of named manufacturers are required to exclusion of equivalent products of other manufacturers.

C. Federal Specifications establish minimum acceptable quality for paint materials. Provide written certification from paint manufacturer that materials provided meet or exceed these minimums.

D. Color Pigments: Pure, non-fading, applicable types to suit substrates and service indicated.

E. Lead content in pigment, if any, is limited to contain not more than 0.06% lead, as lead metal based on the total non-volatile (dry-film) of paint by weight.

1. This limitation is extended to interior surfaces and those exterior surfaces, such as stairs, decks, porches, railings, windows, and doors, which are readily accessible to children under seven years of age.

PART 3 - EXECUTION

3.1 INSPECTION:

A. Applicator must examine areas and conditions under which painting work is to be applied and notify Contractor in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in a manner acceptable to Applicator.

B. Starting of painting work will be construed as Applicator's acceptance of surfaces and conditions within any particular area.

C. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions otherwise detrimental to formation of a durable paint film.

3.2 SURFACE PREPARATION:

A. General: Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as herein specified, for each particular substrate condition.

B. Provide barrier coats over incompatible primers or existing top coats. Remove and reprime as required. ***Notify Designer in writing of any anticipated problems in using the specified coating systems with substrates listed. Paint contractor is responsible for verifying conditions of paint substrates and their compatibility with specified top coat systems.***

C. Remove hardware, hardware accessories, machined surfaces, plates, lighting fixtures, and similar items in place and not to be finish-painted, or provide surface-applied protection prior to surface preparation and painting operations. Remove, if necessary, for complete painting of items and adjacent surfaces. Following completion of painting of each space or area, reinstall removed items.

D. Clean surfaces to be painted before applying paint or surface treatments. Remove oil and grease prior to mechanical cleaning. Program cleaning and painting so that contaminants from the cleaning process will not fall onto wet, newly-painted surfaces.

E. Cementitious Materials: Prepare Cementitious surfaces of concrete, concrete block, cement plaster and cement-asbestos board to be painted by removing efflorescence, chalk, dust, dirt, grease, oils, and by roughening as required to remove glaze.

1. Determine alkalinity and moisture content of surfaces to be painted by performing appropriate tests. If surfaces are found to be sufficiently alkaline to cause blistering and burning if finish paint, correct this condition before application of paint. Do not paint over surfaces where moisture content exceeds that permitted in manufacturer's printed directions.
2. Clean concrete floor surfaces, scheduled to be painted, with a commercial solution of muriatic acid, or other etching cleaner. Flush floor with clean water to neutralize acid, and allow to dry before painting.

F. Wood: Clean wood surfaces to be painted of dirt, oil, or other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sandpaper smooth those finished surfaces exposed to view, and dust off. Scrape and clean small, dry, seasoned knots and apply a thin coat of white shellac or other recommended knot sealer, before application of priming coat. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler. Sandpaper smooth when dried.

1. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job. Prime edges, ends, faces, undersides, and backsides of such wood, including cabinets, counters, cases, and paneling.
2. When transparent finish is required, use spar varnish for back priming.
3. Seal tops, bottoms, and cut-outs of unprimed wood doors with a heavy coat of varnish or equivalent sealer immediately upon delivery to job.

G. Ferrous Metals: Clean ferrous surfaces, which are not galvanized or shop-coated, of oil, grease, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

H. Touch-up shop-applied prime coats wherever damaged or bare, where required by other sections of these specifications. Clean and touch-up with same type shop primer.

I. Galvanized Surfaces: Clean free of oil and surface contaminants with non-petroleum-based solvent.

3.3 MATERIALS PREPARATION:

A. Mix and prepare painting materials in accordance with manufacturer's directions.

B. Maintain containers used in mixing and application of paint in a clean condition, free of foreign materials and residue.

C. Stir materials before application to produce a mixture of uniform density and stir as required during application. Do not stir surface film into material. Remove film, and if necessary, strain material before using.

3.4 APPLICATION:

A. General: Apply paint in accordance with manufacturer's directions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Provide finish coats, which are compatible with prime paints used.

C. Apply additional coats when undercoats, stains or other conditions show through final coat of paint, until paint film is of uniform finish, color and appearance. Give special attention to ensure that surfaces, including edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

D. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Paint surfaces behind permanently fixed equipment or furniture with prime coat only before final installation of equipment.

E. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.

F. Paint backsides of access panels, and removable or hinged covers to match exposed surfaces.

G. Finish exterior doors on tops, bottoms and side edges same as exterior faces, unless otherwise indicated.

H. Sand lightly between each succeeding enamel or varnish coat.

I. Omit first coat (primer) on metal surfaces, which have been shop-primed and touch-up painted, unless otherwise indicated.

J. Scheduling Painting: Apply first-coat material to surfaces that have been cleaned, pretreated or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

K. Allow sufficient time between successive coatings to permit proper drying. Do not recoat until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure and application of another coat of paint does not cause lifting or loss of adhesion of the undercoat.

L. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as indicated or, if not indicated, as recommended by coating manufacturer.

M. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to those items exposed in mechanical equipment rooms and in occupied spaces.

N. Prime Coats: Apply prime coat of material which is required to be painted or finished, and which has not been prime coated by others.

1. Recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat, to assure a finish coat with no burn-through or other defects due to insufficient sealing.

O. Pigmented (Opaque) Finishes: Completely cover to provide an opaque, smooth surface of uniform finish, color, appearance and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness or other surface imperfections will not be acceptable.

P. Transparent (Clear) Finishes: Use multiple coats to produce glass-smooth surface film of even luster. Provide a finish free of laps, cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, or other surface imperfections.

1. Provide satin finish for final coats, unless otherwise indicated.

Q. Completed Work: Match approved samples for color, texture and coverage. Remove, refinish or repaint work not in compliance with specified requirements.

3.5 CLEAN-UP AND PROTECTION:

A. Clean-Up: During progress of work, remove from site discarded paint materials, rubbish, cans and rags at end of each work day.

B. Upon completion of painting work, clean window glass and other paint-spattered surfaces. Remove spattered paint by proper methods of washing and scraping, using care not to scratch or otherwise damage finished surfaces.

C. Protection: Protect work of other trades, whether to be painted or not, against damage by painting and finishing work. Correct any damage by cleaning, repairing or replacing, and repainting, as acceptable to Designer.

D. Provide "Wet Paint" signs as required to protect newly- painted finishes. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

E. At completion of work of other trades, touch-up and restore all damaged or defaced painted surfaces.

3.6 EXTERIOR PAINT SCHEDULE

A. General: Provide the following paint systems for the various substrates, as indicated.

B. CONCRETE MASONRY UNITS: Flat Acrylic Finish: 2 coats over filler coat with total dry film thickness not less than 2.5 mils, excluding filler coat.

1. Filler Coat:

a. PPG Speedhide Latex Block Filler 6-7
b. S.W. PrepRite Latex Block Filler B25W25
c. Or equal.

2. First and Second Finish Coats:

a. PPG Speedhide Ext. Latex Flat 6-610XI: Should a satin finish be desired, use PPG Speedhide Ext Satin 6-2045XI or Semi-Gloss 6-900XI
b. S.W. SuperPaint Ext. Latex Flat A-80 Series: Should a satin finish be desired, use SW SuperPaint Ext Satin A89 Series or Gloss A84 Series
c. Or equal.

C. PRECAST OR TILT UP CONCRETE: High Build Acrylic Finish: 2 finish coats over a primer:

1. Primer Coat:

a. PPG PermaCrete 4-603 Alkali Resistant Masonry Primer
b. S.W. Loxon Concrete & Masonry Primer LX02W0050 Series
c. Or equal.

2. First and Second Coats:

a. PPG PermaCrete 4-22 Series High Build Acrylic Finish
b. S.W. ConFlex XL CF11 High Build Acrylic Coating

c. Or equal.

D. FERROUS METAL: Gloss Alkyd Enamel: 2 finish coats over primer.

1. Primer Coat (Oil Finish):

a. PPG Multiprime 94-258 Fast Dry 2.8 VOC Universal Primer
b. S.W.Kem Kromik Universal Primer, B50Z
c. Or equal.

2. First and Second Coat Oil System:

a. PPG Industrial Enamel 7-282 Series
b. S.W. ProIndustrial Urethane Alkyd Enamel B54-150
c. Or equal.

E. FERROUS METAL: Gloss 100% Acrylic DTM Enamel: 2 finish coats over primer.

1. Primer Coat (Acrylic)

a. PPG 90-712 Series Pitt Tech Int/Ext 100% Acrylic DTM Primer Finish
b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300Series
c. Or equal.

2. First and Second Coat Acrylic System:

a. PPG 90-374 Series Pitt Tech Int/Ext 100% Acrylic DTM Gloss Enamel
b. S.W. ProIndustrial Acrylic Gloss B66-600 Series
c. Or equal.

F. ZINC-COATED METAL: High Gloss Alkyd Enamel: 2 finish coats over primer.

1. Prime Coat (Acrylic):

a. PPG Pitt Tech DTM Primer Finish 90-712
b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300 Series
c. Or equal.

2. First and Second Coats:

a. PPG Industrial Enamel 7-282 Series
b. S.W. ProIndustrial Urethane Alkyd Enamel B54-150
c. Or equal.

G. ZINC COATED METAL: Gloss 100% Acrylic DTM Enamel: 2 finish coats over primer.

1. Primer Coat (Acrylic)

a. PPG 90-712 Series Pitt Tech Int/Ext 100% Acrylic DTM Primer Finish
b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300 Series
c. Or equal.

2. First and Second Coats:

a. PPG 90-374 Series Pitt Tech Int/Ext 100% Acrylic DTM Gloss Enamel
b. S.W. ProIndustrial Acrylic Gloss B66-600 Series
c. Or equal.

H. WOOD: Semi-Gloss 100% Acrylic House Paint: 2 finish coats over a primer.

1. Primer Coat (Acrylic)

a. PPG 17-921 Seal Grip Int/Ext 100% Acrylic Universal Primer
b. S.W. Multi-Purpose Primer B51W00450 Series
c. Or equal.

2. First and Second Coats:

a. PPG Speedhide Ext. Latex Flat 6-610XI: Should a satin finish be desired, use PPG Speedhide Ext Satin 6-2045XI or Semi-Gloss 6-900XI
b. S.W. SuperPaint Ext. Latex Flat A80 Series: Should a satin finish be desired, use SW SuperPaint Ext Satin A89 Series or Gloss A84 Series
c. Or equal.

3.7 INTERIOR PAINT SCHEDULE

A. General: Provide the following paint systems for the various substrates, as indicated.

B. EXPOSED DUCT/ROOF DECKING: Spray dry fog, flat finish: 2 coats sprayed over appropriate primer using recommended size airless sprayer tip at manufacturer recommend mil thickness.

1. Primer Coat: (steel)

a. PPG Multiprime 94-258 2.8 VOC Universal Primer
b. S.W. Kem Kromik Metal Primer B50Z Series
c. Or equal.

2. First and Second Coats:

a. PPG Speedhide Interior Dry-Fog Spray Paint Flat Latex 6-715XI (Flat white)
b. S.W. ProIndustrial Waterborne Acrylic Dryfall (B42 Series, Flat White)
c. Or equal.

C. CONCRETE MASONRY UNITS: Semi-Gloss Latex Enamel Finish: 2 coats over filled surface with total dry film thickness not less than 3.5 mils, excluding filler coat.

1. Filler Coat: Block Filler. Apply filler coat at a rate to ensure complete coverage with pores filled.

a. PPG Speedhide Latex Block Filer 6-7
b. S.W. PrepRite Latex Block Filler B25W25
c. Or equal.

2. Latex Finishes:

a. PPG Speedhide Latex Semi-gloss 6-500 Series
b. S.W. ProMar 200 Zero VOC B31-2600 Series Semi-gloss
c. Or equal.

D. CONCRETE MASONRY UNITS- WET AREAS: Above tile in shower rooms, frequent wash areas, kitchen walls and dishwashing areas: Two coats of two component catalyzed epoxy over a block filler.

1. Block Filler:

a. PPG Perma-Crete 4-100 Concrete Block & Masonry Surface/Filler
b. S.W. Loxon Block Filler LX01W0200 Series
c. Or equal.

2. First and Second Coats:

a. PPG Aquapon WB 98-1 Series Polyamide Water Based Epoxy
b. S.W. Pro Industrial Catalyzed Water Based Epoxy B73-300 Series

c. Or equal.

E. GYPSUM DRYWALL SYSTEMS:

1. Primer Coat:

a. PPG Speedhide Latex Primer 6-2
b. S.W. Preprite 200 Zero VOC Wall Primer, B28W2600
c. Or equal.

2. First & Second Coat:

a. PPG Speedhide Latex Eggshell 6-411 Series
b. S.W. ProMar 200 Zero VOC Latex Eggshell, B20-2600 Series
c. Or equal.

F. GYPSUM DRYWALL SYSTEMS- RESTROOM WALLS:

1. Primer Coat:

a. PPG Speedhide Latex Primer 6-2
b. S.W. Preprite 200 Zero VOC Latex Primer B28W2600
c. Or equal.

2. First & Second Coats:

a. PPG Pitt Glaze 16-310 Series Glaze WB1 Precatalyzed Eggshell Acrylic Epoxy
b. S.W. PI Precatalyzed Water Based Eg-Shel Acrylic Epoxy K45-2150 Series
c. Or equal.

G. FERROUS METAL: Semi-Gloss Enamel Finish: 2 coats over primer, with total dry film thickness not less than 2.5 mils.

1. Prime Coat:

a. PPG Multiprime 94-258 2.8 VOC Universal Primer
b. S.W. Kem Kromik Metal Primer, B50Z
c. Or equal.

2. First & Second Coat Oil:

a. PPG Speedhide Alkyd S/G 6-1110
b. S.W. Promar 200 Alkyd S/G Enamel, B34-200.
c. Or equal.

H. FERROUS METAL: Gloss 100% Acrylic DTM Enamel: 2 finish coats over primer.

1. Primer Coat (Acrylic)

a. PPG 90-712 Series Pitt Tech Int/Ext 100% Acrylic DTM Primer Finish

b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300 Series
c. Or equal.

2. First and Second Coats:

a. PPG 90-374 Series Pitt Tech Int/Ext 100% Acrylic DTM Gloss Enamel
b. S.W. ProIndustrial Acrylic Gloss B66-600 Series
c. Or equal.

I. ZINC-COATED METAL: Semi-Gloss Finish: 2 coats over primer, with total dry film thickness not less than 2.5 mils.

1. Prime Coat:

a. PPG Pitt-Tech DTM Primer Finish 90-712
b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300 Series
c. Or equal.

2. Oil First & Second Coats:

a. PPG Speedhide Alkyd S/G 6-1110
b. S.W. Promar 200 Alkyd S/G Enamel, B34-200
c. Or equal.

J. ZINC-COATED METAL: Gloss 100% Acrylic DTM Enamel: 2 finish coats over primer.

1. Primer Coat (Acrylic)

a. PPG 90-712 Series Pitt Tech Int/Ext 100% Acrylic DTM Primer Finish
b. S.W. ProIndustrial Pro-Cryl Universal Primer B66-1300 Series
c. Or equal.

2. First and Second Coats:

a. PPG 90-374 Series Pitt Tech Int/Ext 100% Acrylic DTM Gloss Enamel
b. S.W. ProIndustrial Acrylic Gloss B66-600 Series
c. Or equal.

K. PAINTED WOODWORK AND HARDBOARD: Semi-Gloss Enamel Finish: 3 coats.

1. Prime Coat:

    a. PPG Seal Grip 17-921 Int/Ext 100% Acrylic Universal Primer
    b. S.W. Preprite Pro Block Acrylic Primer B51W00620 Series
    c. Or equal.

2. Oil Second & Third Coats:

    a. PPG Speedhide Alkyd S/G 6-1110
    b. S.W. Promar 200 Alkyd S/G Enamel, B34-200
    c. Or equal.

L. STAINED WOODWORK: Stained - Varnish Rubbed Finish: 3 finish coats over stain plus filler on open grain wood.

1. Stain Coat: Interior Oil Stain:

    a. PPG Deft DFT400 Series Premium Oil Based Wood Stain
    b. S.W. Minwax Performance Series Interior Oil Stain
    c. Or equal.

2. Second and Third Coats: Oil Rubbing Varnish:

    a. PPG Deft DFT26 Series Defthane Satin Polyurethane
    b. S.W. Minwax Performance Series Fast Dry Oil Varnish
    c. Or equal.

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