

**INVITATION TO BID  
AND  
GENERAL CONDITIONS FOR:**

**HOMEWOOD-FLOSSMOOR PARK DISTRICT**

**IRONS OAKS  
RAMP REPLACEMENT  
20000 Western Avenue  
Olympia Fields, IL 60461**

**BID OPENING ON:**

**December 12, 2019**

**TIME: 10:00 a.m.**

**LOCATION OF BID OPENING:**

**HOMEWOOD-FLOSSMOOR PARK DISTRICT  
GOLDBERG ADMINISTRATION CENTER  
3301 FLOSSMOOR RD.  
FLOSSMOOR, IL 60422**

**BID BOND REQUIRED**

**Any questions please call:**

**Cheryl Vargo  
Manager, Irons Oaks  
708-481-2330**

## INVITATION TO BID

**Homewood-Flossmoor Park District  
3301 Flossmoor Rd  
Flossmoor, IL 60422**

**Re: Irons Oaks Ramp Replacement**

**Project Location: Irons Oaks  
20000 Western Avenue  
Olympia Fields, IL 60461**

The Homewood-Flossmoor Park District (the "District") is accepting bids for the Irons Oaks Ramp Replacement Project.

Specifications and Contract Documents may be obtained beginning December 2, 2019 at the District's Administrative Office at the Goldberg Center, 3301 Flossmoor Road, Flossmoor, IL 60422, Monday - Friday, 8:00 a.m. - 5:00 p.m., or in PDF format at the District's website: [www.hfparks.com//bidsrfps/](http://www.hfparks.com//bidsrfps/).

Each bid must be placed in a sealed, opaque envelope with the Bidder's name, the date and time of the bid deadline and marked "**Sealed Bid**: - Homewood-Flossmoor Park District Irons Oaks Ramp Replacement Project," and addressed to the Homewood-Flossmoor Park District, 3301 Flossmoor Road, Flossmoor, IL 60422, **Attention: Cheryl Vargo, Manager, Irons Oaks**. Bids will be received until 10:00 a.m. on December 12, 2019, at which time the bid proposals will be publicly opened and read aloud at the Goldberg Administration Center, 3301 Flossmoor Road, Flossmoor, IL 60422.

The Homewood-Flossmoor Park District Board of Park Commissioners reserves the right to waive all technicalities, to accept or reject any or all bids, to accept only portions of a proposal and reject the remainder without disclosure for any reason. Failure to make such a disclosure will not result in accrual of any right, claim or cause of action by any Bidder against the Homewood-Flossmoor Park District.

Bids shall not include federal excise tax or state sales tax for materials and equipment to be incorporated in, or fully consumed in the performance of, the work. An Exemption Certificate will be furnished by the Homewood-Flossmoor Park District on request of the Bidder, for use in connection with this project only.

The Work of this Project is subject to the Illinois *Prevailing Wage Act*, 820 ILCS 130/0.01 *et seq.* A prevailing wage determination has been made by the Illinois Department of Labor for public works projects in Cook County. The Contract entered into for the Work will be drawn in compliance with said law and proposals should be prepared accordingly and provide for payment of all laborers, workmen, and mechanics needed to perform the Work at no less than the prevailing rate of wages (or the prevailing rate for legal holiday and overtime work) for each craft, type of worker, or mechanic.

All bid proposals must be accompanied by a bid bond or bank cashier's check payable to the Homewood-Flossmoor Park District for ten percent (10%) of the amount of the bid as provided in

the Instructions to Bidders. No proposals or bids will be considered unless accompanied by such bond or check.

The Contractor selected will also be required to comply with all applicable federal, state and local laws, rules, regulations and executive orders including but not limited to those pertaining to equal employment opportunity.

The District encourages women and minority business firms to submit bids and encourages bidders to utilize minority businesses for supplies, equipment and services.

Cheryl Vargo, Manager, Irons Oaks  
Homewood-Flossmoor Park District

**Date:** December 2, 2019

## INSTRUCTIONS TO BIDDERS

### 1. DEFINITIONS

The Homewood-Flossmoor Park District and Owner are one and the same. The Owner's representative, Cheryl Vargo, can be contacted at the Homewood-Flossmoor Park District by phone or email: (708) 481-2330, [cvargo@hfparks.com](mailto:cvargo@hfparks.com).

The word "Contractor," or "Bidder," shall mean the party bidding for or entering the Contract for the performance of the Work covered by the written Specifications and Drawings, and his/her legal representatives or authorized agents.

### 2. BID Documents

The Bid Documents may be obtained beginning December 2, 2019 at the District's Administrative Office at the Goldberg Center, 3301 Flossmoor Road, Flossmoor, IL 60422, Monday - Friday, 8:00 a.m. – 5:00 p.m., or in PDF format at the District's website: [www.hfparks.com//bidsrfps/](http://www.hfparks.com//bidsrfps/).

### 3. SUBMISSION OF BID

- A. Bids shall be submitted only on the forms (Bid Form, List of Subcontractors, Bidder's Reference List and certifications provided in these documents (collectively, the "Contractor's Bid Forms"). The Contractor's Bid Forms shall be executed properly and all writing, including all signatures, shall be with black ink. Failure to use the Contractor's Bid Forms provided could result in rejection of the bid.
- B. All applicable blank spaces on the Contractor's Bid Forms shall be fully completed, and all amounts shall be in words as well as in figures where applicable.
- C. Erasures, interlineations, corrections, or other changes on the Contractor's Bid Forms shall be explained or noted over the signature of the Bidder. No bid submitted with deviations or reservations from the full contract called for will be considered.
- D. Bidders' prices are to include the delivery of all materials; including plant, equipment, supplies, tools, scaffolding, transportation, insurances, bonds, warranties, and all other items and facilities, and the performance of all labor and services, necessary for the proper completion of the work except as may be otherwise expressly provided in the Contract Documents. Bids shall not include federal excise tax or state sales tax for materials to be incorporated in, or totally consumed in the prosecution of, the Work. An exemption certificate will be furnished by the Park District upon request of the Bidder.
- E. Bidder must acknowledge all Addenda received in the spaces provided on the Bid Form. By submitting a bid, Bidder indicates that all considerations issued by Addendum are incorporated in the bid.

- F. Contractor is required to complete the Contractor's Compliance and Certification Attachment/ Substance Abuse Prevention Program Certification regarding the Bidder's compliance with applicable laws. **Failure of a Bidder to complete/submit the required certifications shall be the basis for immediate rejection of that Bidder's bid.** The certifications of the successful Bidder shall become a part of the Contract with the Park District.
- G. Bids shall be submitted in sealed in an opaque envelope, marked with the name of the Bidder, the date and time of the bid opening and addressed as follows:

Homewood-Flossmoor Park District  
**Attention: Cheryl Vargo, Manager, Irons Oaks**  
3301 Flossmoor Road  
Flossmoor, IL 60422

**Sealed bids for: Homewood-Flossmoor Park District  
Irons Oaks Ramp Replacement Project**

- H. Bid documents shall be delivered or mailed in time for delivery to the foregoing address no later than December 12, 2019 at 10:00 a.m. Oral bids or oral modifications to bids will not be considered. It is the sole responsibility of the Bidder to see that his bid is received in proper time. **No faxed or e-mail bid or modification of a bid will be considered.** The Park District is not responsible for the premature opening of bids not marked as required. Any bid opened prematurely due to the failure of the Bidder to mark the envelope in accordance with these Bid Documents will be considered non-responsive.
- I. Bids will be publicly opened on the due date.

#### 4. EXAMINATION OF DOCUMENTS AND SITE

Each Bidder shall visit the site(s) of the proposed Work and fully acquaint himself with conditions, as they exist, and shall undertake such additional inquiry and investigation as he shall deem necessary so that he may fully understand the requirements, facilities, possible difficulties and restrictions attending the execution of the Work under the Contract. Bidder shall thoroughly examine and be familiar with all of the Bid Documents including, but not limited to, the Drawings and the written Specifications. Any conflicts or discrepancies found between or among Bid Documents including, but not limited to, the Drawings and written Specifications and the site conditions, or any errors, omissions or ambiguities in the Drawings or written Specifications shall be immediately reported to the Park District and written clarification requested prior to submission of a bid.

The failure or omission of any Bidder to obtain, receive or examine any form, instrument, or information or to visit the Project site(s), and become knowledgeable with respect to conditions there existing, or to seek needed clarification shall in no way relieve any Bidder from any obligations with respect to his bid. By submitting a bid, the Bidder agrees, represents and warrants that he has undertaken such investigation as he deemed necessary, has examined the site(s) and the Bid Documents, has obtained all needed clarifications and where the Bid Documents indicate in any part of the Work, that a given result be produced, that the Bid Documents are adequate and the required result can be produced as indicated in the Specifications and Drawing(s). Once the award

has been made, failure to have undertaken and completed the foregoing tasks shall not be cause to alter the original Contract or to request additional compensation.

## 5. INTERPRETATIONS

**All questions about the Bid Documents need to be submitted in writing to the Homewood-Flossmoor Park District and shall be received on or before 1:00 p.m. on December 6, 2019.** Submit questions via e-mail to Cheryl Vargo, [cvargo@hfparks.com](mailto:cvargo@hfparks.com), fax (708) 481-1454, or via mail at 3301 Flossmoor Rd., Flossmoor, IL 60422.

The Park District shall in all cases determine the amount or quantity of the several kinds of Work which are to be paid for under this Contract, and shall decide all questions which may arise relative to the execution of the Contract on the part of the Contractor, and all estimates and decisions shall be final and conclusive. The Park District shall have the right to make alterations in the lines, grades, plans, forms, or dimensions of the Work herein contemplated either before or after the commencement of the Work. If such alterations diminish the quantity of the Work to be done, they shall not constitute a claim for damage or for anticipated profits on the work dispensed with, or if they increase the amount of Work, such increase shall be paid according to the quantity actually done and at the price or prices stipulated for such Work in the Contract. The Park District reserves the right to approve, an equal to or superior to product or equipment required under the Specifications, or to reject as not being and equal to or superior to the product or equipment required under the Specifications. If the Bidder is in doubt as to the interpretation of any part of the Bid Documents, or finds errors, discrepancies or omissions from any part of the Contract Documents, he must submit a written request for interpretation thereof by the date and time set above in this Section 5. If an error or omission is discovered in the Bid Documents after the bid opening, the Park District reserves the right: i) to determine whether to require the submission of new bids; or ii) if the error or omission is of such a nature that it was reasonably discoverable upon a careful review of the Bid Documents, to award the Contract to the lowest responsive and responsible Bidder as determined by the Park District and to require that Contractor to perform the Work in accordance with an issued correction by the Park District and for the amount bid by the Contractor. Such decisions are final and not subject to recourse. Errors and omissions made by the Bidder cannot be corrected after the bid opening.

## 6. ADDENDA

Any interpretation, correction to, or addition to the Bid Documents will be made by written Addendum and will be delivered by mail or fax to each prime Bidder of record. The written Addenda constitute the only interpretations of the Bid Documents; the Park District accepts no responsibility for any other claimed interpretations or communications.

It is the responsibility of each Bidder to verify that he has received all Addenda prior to submitting a bid. It is also the responsibility of each Bidder to verify that all subcontractors and material suppliers whose prices are incorporated in the Bidder's bid are familiar with the Bid Documents in their entirety, including all Addenda issued up to the time of bid opening.

In the event a conflict or omission is discovered in the Bid Documents after the issuing of the last Addendum such that an interpretation cannot be issued by the Park District prior to bidding, the Bidder is directed to estimate on and provide the quantity and quality of material and labor consistent with the overall represented and indicated Work so as to provide all materials,

equipment, labor, and services necessary for the completion of the Work in accordance with the Bid Documents.

#### 7. SUBSTITUTIONS DURING BIDDING

Unless otherwise indicated, the use of brand names in the Specifications are used for the purpose of establishing a grade or quality. Bidders proposing to use an alternate that is equal to or superior to in every respect the product or material required by the Specifications must request approval in writing to the Park District at least seven (7) business days prior to the bid opening and mark the item as 'or approved equal'.

Additionally, Bidders requesting approval for use of an alternate must provide certification by the manufacturer that the substitute proposed is equal to or superior in every respect to that required by the Contract Documents, and that its in-place performance will be equal to or superior to the product or equipment specified in the application indicated. The Bidder, in submitting the request for substitution, waives the right to additional payment or an extension of Contract Time because of the failure of the substitute to perform as represented in the request for substitution.

The Park District may request additional information or documentation necessary for evaluation of the request for substitution. The Park District will notify all Bidders of acceptance of the proposed substitute by means of an Addendum to the Bid Documents. Park District's approval of a substitute during bidding does not relieve the Contractor of the responsibility to submit required shop drawings and to comply with all other requirements of the Contract Documents, including but not limited to proper performance of all components of the Work and suitability for the uses specified.

Bids proposing alternates not previously approved by the Park District will be considered non-responsive and rejected. The Park District reserves the right to determine whether a substituted selection, in its judgment, is equal to or better quality and therefore an acceptable alternate. Such decisions are final and not subject to recourse.

#### 8. MODIFICATION OR WITHDRAWAL OF BIDS

Bidders may withdraw or cancel their bids at any time prior to the advertised bid opening time by signing and submitting a request for said withdrawal. After the bid opening time, no bid shall be withdrawn or canceled for a period of sixty (60) calendar days.

#### 9. QUALIFICATION OF BIDDERS

Bidders must be able to demonstrate that they: 1) have experience in performing and have successfully performed and are still actively engaged in performing work similar in kind and scope to the Work of the Project; and 2) are able to show that they have adequate laborers and materials to successfully complete the Work as indicated in the Bid Documents and within the time required by the Bid Documents. The Contractor shall not have been debarred or determined ineligible for public contracts by any governmental agency.

The following information must be attached to the bid proposal. Failure to do so may result in disqualification of the Bidder.

- A. On a separate sheet, list all construction projects your organization has in progress, giving the name of the project, project description, project address, owner and telephone number, architect and telephone number, contract amount, percent complete, and scheduled completion date.

- B. On the Bidder's Reference List form provided herein, list at least three (3) construction projects your organization has completed in the past five (5) years, which are comparable in scope, giving the name of the project, project description, project address, owner and telephone number.
- C. On the List of Subcontractors form provided herein, provide a list of anticipated subcontractors, if any, including their firm names, addresses and telephone numbers. All subcontractors to be used shall be approved by the Owner. If the Contractor subcontracts any part of the Work for this project, the Contractor shall not under any circumstances be relieved of his liabilities and obligations; any subcontractor for this project will be recognized only in the capacity of an employee of the Contractor.
- D. On a separate sheet, list all administrative proceedings and litigation filed by or against Bidder in the past five (5) years, including the name and case number, name/jurisdiction of the court or administrative agency, and a summary of each claim/case, including current status and if no longer pending, the disposition. The foregoing includes but is not limited to information regarding any proceedings and actions taken by any governmental agency to debar or disqualify the Bidder from bidding on public contracts, including the name of the agency initiating the proceeding/action, the nature of the proceeding/action, the claimed basis for the proceeding/action and the current status or disposition of the proceeding/action.
- E. On a separate sheet, indicate all instances in which Bidder has been rejected for not being a responsible bidder, giving the name of the project, project description, project address, owner and telephone number, architect and telephone number, contract amount, and an explanation of the circumstances surrounding the rejection.
- F. On a separate sheet, provide a list of all contracts to which you were a party and with respect to which you were declared to be in breach of one or more provisions, giving a the type of contract, the project location where applicable, the names and addresses of the parties to the contract, the name of the party declaring the breach, the nature of the claimed breach and current status or resolution of the claim. If a construction contract, also provide the name, address and telephone number of the architect and, if applicable also the construction manager or Owner's representative.
- G. Other required submittals include: Bid Form; Contractor's Compliance and Certification Attachment/ Substance Abuse Prevention Program Certification. **Failure of a Bidder to complete/submit these documents shall be the basis for immediate rejection of that Bidder's bid.**

The Park District reserves the right to require of any Bidder such information to verify the Bidder's qualifications and financial status and to withhold formal signing of the contract until such information is received.

#### 10. ACCEPTANCE OR REJECTION OF BIDS

The Park District may accept the bid of, and award the contract for the Work to, the lowest responsive and responsible Bidder as determined by and in the sole discretion of the Park District.

The Owner reserves the right to (1) reject all bids; (2) reject only certain bids which are non-conforming or non-responsive to the bid requirements; (3) accept only a portion, part or specific items of Work of all and reject others, as the Owner shall in its sole discretion determine to be in its best interest; and/or (4) award the Contract to the responsible Bidder submitting the lowest bid responsive to the bidding requirements. No bid will be accepted from or Contract awarded to any person, firm or corporation that is in arrears or is in default to the Park District upon any debt or contract, or that is a defaulter, as surety or otherwise, upon any obligation to said Park District or that has failed to perform faithfully any previous contract with the Park District.

In the event of a rejection of a portion, part, or certain items of Work of all bids, the bid of each Bidder shall automatically be deemed reduced by the amount of such rejected part or item at the unit price or other cost designated therefore by that Bidder on its submitted Contractor Bid Form. The successful Bidder so selected may not refuse to enter into a Contract with the Owner on the basis that the Owner awarded a Contract for less than all portions or items of the Work specified in the Bid Documents. The Homewood-Flossmoor Park District Board of Park Commissioners reserves the right to waive any technicalities or irregularities, and to disregard any informality on the bids and bidding, when in its opinion the best interest of the Park District will be served by such actions and in accordance with applicable law.

#### 11. SURETY

All bids must be accompanied by a bid bond or bank cashier's check payable to the Homewood-Flossmoor Park District for ten percent (10%) of the amount of the bid and drawn on a responsive and responsible bank doing business in the United States. All bids not accompanied by a bid security, when required, will be rejected.

The bid security of all except the three (3) lowest responsive and responsible Bidders will be returned after the decision to accept or reject bids by the Homewood-Flossmoor Park District Board of Park Commissioners. The bid security of the three (3) lowest Bidders shall be returned upon receipt from the successful Bidder of an acceptable Performance Bond and Labor and Material Payment Bond, Certificate of Insurance naming the Homewood-Flossmoor Park District as the certificate holder and as an additional insured, and the successful Bidder has signed and returned to the Park District the Contract for the work presented by the Park District.

Prior to beginning Work, the successful Bidder shall furnish a Performance Bond, and Labor and Materials/Payment Bond in the amount of 110% of the Contract Sum, using a form similar to the AIA-A312-2010 form, or its current equivalent, or one acceptable to Owner, cosigned by a surety company licensed to conduct business in the State of Illinois and with at least an "A" rating and a financial rating of at least "X" in the latest edition of the Best Insurance Guide. Said bond shall guarantee the faithful performance of the Work in accordance with the Contract, the payment of all indebtedness incurred for labor and materials, and guarantee correction of Work. The cost of each bond shall be included in the Contract Sum. The Bidder and all Subcontractors shall name the Park District as an obligee on all bonds. Said bonds shall meet the requirements of the Illinois Public Construction Bond Act, 30 ILCS 550/0.01 et seq. and any further amendments thereto. Bidder shall include in its Performance Bond and Labor and Material Payment Bond such language as shall guarantee the faithful performance of the Prevailing Wage Act as required in these Bid Documents.

The Performance Bond and Labor and Material Payment Bond will become a part of the Contract. The failure of the successful Bidder to enter into the Contract and supply the required bonds and evidence of insurance within ten (10) days after the Contract is presented for signature, or within such extended period as the Park District may grant, shall constitute a default, and the Park District may either award the Contract to the next responsible Bidder, or re-advertise for bids. In the event of a default, the Owner need not return the defaulting Bidder's bid surety and may charge against the defaulting Bidder for the full difference between the amount for 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 defaulting Bidder's bid surety, provided that the District's retention of the bid guarantee shall not preclude the District from holding the Bidder fully liable for any and all damages which are in excess of said partial liquidated damages, and which shall otherwise be incurred by the District, including reasonable attorneys' fees, arising from the Bidder's failure to enter into said Contract and to deliver the same back to the District within said ten (10) day period.

## 12. ACCEPTANCE AND CONTRACT

Owner will award the Contract to the lowest most responsible and responsive Bidder, as determined by Owner. In considering the Bidder's responsibility, the Owner may evaluate, among other factors, the ability of the Bidder to provide experienced labor sufficient in numbers to timely and properly complete the services, conformity with the specifications, serviceability, quality, and the financial capability of the Bidder, and the performance of the Bidder on other projects.

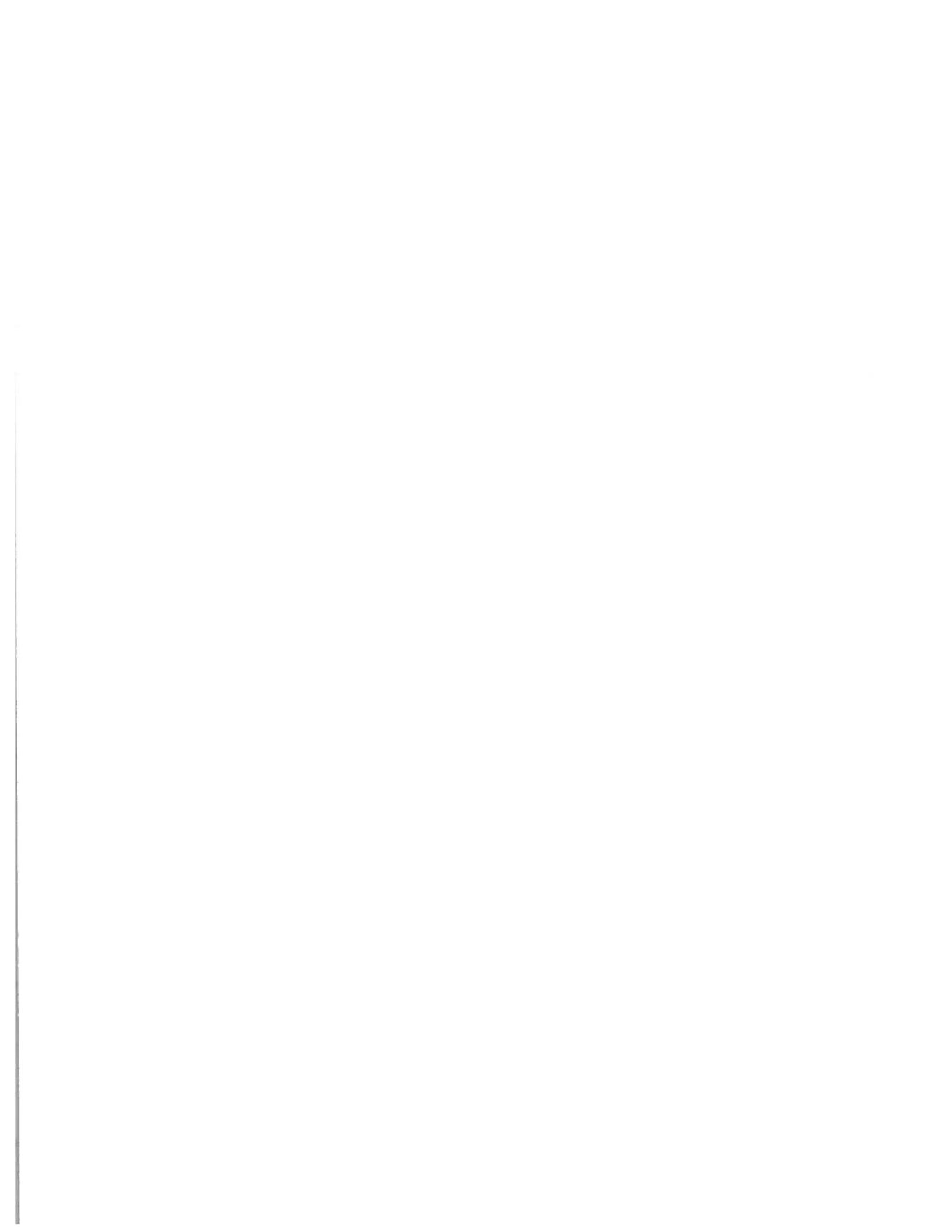
The Owner shall have the right to accept Alternates in any order or combination, and to determine the low Bidder on the basis of the sum of the Base Bid and Alternates accepted.

Bids will be awarded to one Bidder for the entire Project or to any series of Bidders for an appropriate proportion of the Project. If specified in the Bid Form, awards will be based upon the submitted unit prices.

The acceptance of a bid will be by a Notice of Award, signed by a duly authorized representative of the Park District; no other act by the Park District shall constitute the acceptance of a bid. The acceptance of a bid by the Park District shall bind the successful Bidder to execute and perform the work of the Contract. The successful Bidder to whom the Contract is awarded by the Park District shall sign and deliver to the Park District for execution by the Park District all required copies of the Contract, along with all required insurance and surety documents within ten (10) days after presentation to him of the Contract for signature. In case the Bidder shall fail or neglect to do so, he will be considered as having abandoned the Contract, and as being in default to the Owner. The Owner may thereupon re-advertise or otherwise award said Contract and forfeit the Bid Security.

The Invitation to Bid, Instructions to Bidders, General Conditions, Supplementary and/or Special Conditions, if any, Drawings, Specifications, Contractor Bid Forms, including all Contractor Certifications, the Addenda, if any, and the Prevailing Wage Determination and Supersedes Notice comprise the Bid Documents. The Bid Documents, together with the Standard Abbreviated Form of Agreement Between Owner and Contractor, AIA Document A104-2017, as modified by the Park District and included in these Bid Documents, and the Performance Bond and Labor Material Payment Bond and proof of insurance comprise the Contract Documents.





**CONDITIONS OF THE CONTRACT  
HOMWOOD-FLOSSMOOR PARK DISTRICT  
IRONS OAKS ENVIRONMENTAL LEARNING CENTER  
RAMP REPLACEMENT  
20000 Western Avenue  
Olympia Fields, IL 60461**

**GENERAL CONDITIONS**

The General Conditions are the General Provisions of the Standard Abbreviated Form of Agreement Between Owner and Contractor, AIA Document A104-2017, as modified by the Park District and included in these Bid Documents (the "General Conditions").

**SUPPLEMENTARY CONDITIONS**

The General Conditions are hereby amended to include the following:

**1. COMMENCEMENT AND COMPLETION DATE**

The Work for the Contract shall commence on a date to be determined. Contractor shall achieve Substantial Completion on or before April 10, 2020 and shall achieve Final Completion on or before April 20, 2020, unless otherwise extended by agreement of the parties pursuant to the General Conditions.

**2. USE OF THE SITES**

The Contractor shall confine all equipment, the storage of materials and the operations of its workers to limits indicated by law, ordinances, permits, or directions of the Owner and shall not unreasonably encumber the site with such materials. The site shall not be utilized for the storage of vehicles, materials, equipment, or fixtures not intended for the Work to be performed.

**3. COOPERATION WITH UTILITIES**

The Contractor shall notify all utility companies, public and private, as necessary in advance of commencing performance of the Work. The responsibility for moving water lines, gas lines, wire lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cable ways, signals and all other utility appurtenances which are within the limits of the proposed construction will be assumed by the Contractor, at no additional compensation.

The Contractor shall verify the location of all utilities prior to the start of construction and shall be responsible for the preservation of existing utility installation and the cost of providing precautionary supports, braces, etc. to insure against damage to said utility installation.

The cost to repair and replace any new or existing utilities damaged will be paid for by the Contractor.

It is understood and agreed that the Contractor has considered in its bid all of the permanent and temporary utility appurtenances in their present or relocated positions and that no additional compensation will be allowed for delays, inconvenience, or damage sustained by the Contractor, due to any interference from the said utility appurtenances or the operation of moving them either by the utility company or by the Contractor, or on account of any special construction methods required in performing the Work due to the existence of said appurtenances whether in their present or relocated positions.

**4. PROTECTION OF PROPERTY -SAFETY RESPONSIBILITY**

In accordance with the Specifications, the Contractor shall protect all existing property and improvements within the Project site and those adjacent to the Owner's property in a manner agreed upon between the Owner and Contractor. The Contractor shall be responsible for the repair cost of any damage created by its operations or the operations of any subcontractors.

Contractor shall comply with State and Federal regulations as outlined in the latest revision of the Federal Construction Safety Standards and with applicable provisions and regulations of Occupation Safety and Health Administration (OSHA), Standards of the William-Steiger Occupational Health and Safety Act of 1970 (revised). The Contractor and Owner shall each be responsible for their respective agents and employees.

The Contractor shall be obligated to indemnify, hold harmless and protect the Owner, its officers, employees and agents, from any actions or suits instituted as a direct or indirect result of any injury or damage consequent upon any failure to use or misuse by the Contractor, its agents and employees and any subcontractor, its agents and employees, of any ladder, support or other mechanical contrivance erected or constructed by any person or any or all kinds of equipment whether or not owned by or furnished by the Owner.

**5. INSURANCE**

**BIDDER'S ATTENTION IS DIRECTED TO THE INSURANCE REQUIREMENTS BELOW. IT IS HIGHLY RECOMMENDED THAT THE BIDDER CONFER WITH ITS INSURANCE CARRIER REGARDING THESE REQUIREMENTS. FAILURE TO MEET THESE REQUIREMENTS IS CAUSE FOR CANCELLATION OF THE CONTRACT.**

The successful Bidder shall obtain insurance of the types and in the amounts listed below.

**a. Commercial General and Umbrella Liability Insurance**

The successful Bidder shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella insurance with a limit of not less than \$2,000,000 each occurrence. If such CGL insurance contains a general aggregate limit, it shall apply separately to this project/location.

CGL insurance shall be written on Insurance Services Office (ISO) occurrence form CG 00 01 04 13, or a substitute form providing equivalent coverage, and shall cover liability arising from premises, operations, independent contractors, products-completed operations, personal injury and advertising injury, and

liability assumed under an insured contract (including the tort liability of another assumed in a business contract).

The District, its elected and appointed officials, employees, agents and volunteers shall be included as an additional named insured under the CGL, using ISO additional insured endorsement CG 20 26 or a substitute providing equivalent coverage, and under the commercial umbrella, if any. This insurance shall apply as primary insurance with respect to any other insurance or self-insurance afforded to District. Any insurance or self-insurance maintained by the District shall be deemed excess of such bidder's insurance and shall not contribute with it.

**b. Continuing Completed Operations Liability Insurance**

Contractor shall maintain commercial general liability (CGL) and, if necessary, commercial umbrella liability insurance with a limit of not less than \$2,000,000 each occurrence for at least three years following Substantial Completion of the Work.

Continuing CGL insurance shall be written on ISO occurrence form CG 00 01 04 13, or substitute form providing equivalent coverage, and shall, at minimum, cover liability arising from products-completed operations and liability assumed under an insured contract.

Continuing CGL insurance shall have a products-completed operations aggregate of at least two times its each occurrence limit.

Continuing commercial umbrella coverage, if any, shall include liability coverage for damage to the insured's completed work equivalent to that provided under ISO form CG 00 01.

**c. Business Auto and Umbrella Liability Insurance**

The successful Bidder shall maintain business auto liability and, if necessary, commercial umbrella liability insurance with a limit of not less than \$1,000,000 each accident. Such insurance shall cover liability arising out of any auto including owned, hired and non-owned autos.

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

**d. Workers Compensation Insurance**

The successful Bidder shall maintain workers compensation and employers liability insurance. The commercial umbrella and/or employers liability limits

shall not be less than \$1,000,000 each accident for bodily injury by accident or \$1,000,000 each employee for bodily injury by disease.

Such Bidder waives all rights against District and its officers, officials, employees, volunteers and agents for recovery of damages arising out of or incident to such Bidder's activities.

**e. General Insurance Provisions**

i. Evidence of Insurance: The successful Bidder shall furnish the District with a certificate(s) of insurance and applicable policy endorsement(s), executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements set forth above.

All certificates shall provide for 30 days' written notice to the District prior to the cancellation or material change of any insurance referred to therein. Written notice to the District shall be by certified mail, return receipt requested.

Failure of the District to demand such certificate, endorsement or other evidence of full compliance with these insurance requirements, or failure of the District to identify a coverage deficiency from evidence that is provided, shall not be construed as a waiver of such Bidder's obligation to maintain such insurance.

The District shall have the right, but not the obligation, of prohibiting such Bidder from entering the premises until such certificates or other evidence that insurance has been placed in complete compliance with these requirements is received and approved by District.

Failure to maintain the required insurance may result in termination of the Contract entered by the parties at the District's option.

With respect to insurance maintained after final payment in compliance with a requirement above, an additional certificate(s) evidencing such coverage shall be promptly provided to the District upon request.

Such Bidder shall provide certified copies of all insurance policies required above within 10 days of the District's written request for said copies.

ii. Acceptability of Insurers: All insurance companies shall maintain a rating no less than A-VII from A.M. Best, based on the most recent edition of the A.M. Best's Key Rating Guide. If the Best's rating is less than A-VII or a Best's rating is not obtained, the District has the right to reject insurance written by an insurer it deems unacceptable.

iii. Cross-Liability Coverage: If Contractor's liability policies do not contain the standard ISO separation of insured's' provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

iv. **Deductibles and Self-Insured Retentions:** Any deductibles or self-insured retentions must be declared to the District. At the option of the District, the successful Bidder may be asked to eliminate such deductibles or self-insured retentions as respects the District, its officers, officials, employees, volunteers and agents, or such Bidder may be required to procure a bond guaranteeing payment of losses and other related costs, including, but not limited to, investigations, claims administration and defense expenses.

**f. Subcontractors**

Contractor shall cause each subcontractor employed by Contractor to purchase and maintain insurance of the type specified above. When requested by the Owner, Contractor shall furnish copies of certificates of insurance evidencing coverage for each subcontractor.

**6. INDEMNIFICATION**

To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner and its officers, officials, employees, volunteers and agents from and against all claims, damages, losses and expenses including but not limited to legal fees (attorney's and paralegals' fees and court costs), arising out of or resulting from the performance of the Contractor's work, provided that any such claim, damage, loss or expense (i) is attributable to bodily injury, sickness, disease or death, or injury to or destruction of tangible property, other than the work itself, including the loss of use resulting therefrom and (ii) is caused in whole or in part by any wrongful or negligent act or omission of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person described in this Paragraph. Contractor shall similarly protect, indemnify and hold and save harmless the Owner, its officers, officials, employees, volunteers and agents against and from any and all claims, costs, causes, actions and expenses including but not limited to legal fees, incurred by reason of Contractor's breach of any of its obligations under, or Contractor's default of, any provision of the Contract.

Nothing contained herein shall be construed as prohibiting the District, its officers, employees or agents from defending, through the selection and use of their own agents, attorneys and experts, any claims, suits, demands, proceedings or actions brought against them. The District's participation in its defense shall not remove the successful Bidder's duty to indemnify, defend and hold the District harmless as set forth herein.

The indemnification required hereunder shall not be limited by reason of the enumeration of insurance coverage herein provided.

The successful Bidder's indemnification of the District shall survive the termination or expiration of the Contract.

7. **WARRANTY**

The Work performed and the materials and equipment installed under this Contract shall be in compliance with the Contract Documents and must be guaranteed by the Contractor for a period of twelve (12) months from Substantial Completion or for the period(s) set forth in the scope of work/Specifications, whichever is longer, against defective workmanship and material of any nature. On all material or equipment incorporated, the Contractor and its Surety must guarantee that the type, quality, design and performance will fully meet the requirements of the Specifications and Drawings. Neither final payment nor termination of the guarantee period, nor any provision in the Contract Documents shall relieve the Contractor of the responsibility for negligence, faulty materials, or workmanship within the extent and period provided by law and, upon written notice, he/she shall remedy any defects due thereto, and shall pay all expenses for any damage to other work resulting therefrom.

8. **COMPLETION OF WORK**

All Work, as either implied or reasonably inferable from the Contract Documents and Specifications shall be the responsibility of the Contractor. All Specifications are directed to the attention of the Contractor and the inclusion of any work by mention, note, detail, itemization or implication, however brief, means that the Contractor shall provide and install same. All Work performed shall include all appurtenances and apparatus normally deemed to be a part of a completed package within the definitions of normal industry standards.

9. **SUPERVISION**

The Contractor is to provide a full-time superintendent on the Project to coordinate all subcontractors' work and supervise the daily activity of the Project as well as maintain the site in a safe clean manner.

10. **SITE CONDITIONS**

All Contractors' Work shall be performed in a first-class, workmanlike manner, cutting, patching, matching and aligning all surfaces where applicable to afford a finished neat appearance. Contractor shall clean all surfaces free of dirt and refuse caused by debris from all installation techniques of the trade. All adjacent surfaces to their Work shall be left as they appear prior to the commencement of the Contractor's Work to be done. Contractor shall properly protect all adjacent surfaces during the course of this installation.

11. **OWNER INSPECTION**

The District's representative shall have access to the site at all times and to the factory or shop of any of the subcontractors. Any inferior material or workmanship shall be removed upon demand and Work shall be reconstructed as approved by the Owner at the Contractor's sole expense.

12. **OTHER CONTRACTS**

The Owner reserves the right to let other contracts in connection with the Work of the Project. The Contractor shall be responsible for coordination of Work and establishing schedules for all

trades; and shall afford other contractors reasonable opportunity for the introduction and storage of their materials and equipment and the execution of their work.

**13. CHANGES TO THE WORK**

The District reserves the right to make changes in the Specifications as the Work progresses. Bulletins, change orders, Drawings, Specifications or instructions covering such changes will be issued to the Contractor whose responsibility it will be to distribute these immediately and to notify the field office and all subcontractors affected to take such measures as may be necessary to avoid errors in the Work which may occur due to the use of superseded Drawings. Work affected by changes proposed in any revised Drawings or other documents issued to the Contractor shall not be executed unless changes are accompanied by letter of authorization to proceed accordingly. In cases where instructions accompanying any issue of revised Drawings or Specifications request estimates of cost involved, such estimates shall be prepared and submitted promptly in order not to unduly affect the progress of the Work.

**14. SHOP DRAWINGS**

Contractor shall submit all shop drawings for approval to the Owner prior to commencement of Work. Shop drawing submittals shall be in the form of (5) black and white prints of each drawings; (5) catalog cut sheets; and (1) PDF file as applicable. Approval of shop drawing shall indicate only that such drawings generally express the intent of the Contract Documents and shall neither be construed as a complete check nor relieve the Contractor of responsibility for quantities and dimensions, or full performance of the Work. All Contractors shall submit cuts, samples and finishes for written approval prior to ordering of fabrication. A tentative shop drawing submittal schedule with proposed review dates is requested from the Contractor.

**SPECIAL CONDITIONS**

1. Unless expressly agreed otherwise by the District, the Iron Oaks Environmental Learning Center shall remain open to the public for the duration of the Project. As such, Contractor shall maintain the Project site in a manner that ensures safe access to park amenities by the public, Park District staff and others requiring access to the parks. Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities bearing on safety of persons or property or their protection from damage, injury or loss.

**BID FORM**  
**HOMEWOOD-FLOSSMOOR PARK DISTRICT**  
**IRONS OAKS ENVIRONMENTAL LEARNING CENTER**  
**RAMP REPLACEMENT**

*(Please complete in ink, and print or type)*

TO: Homewood-Flossmoor Park District  
3301 Flossmoor Road  
Flossmoor, Illinois 60422

FROM: \_\_\_\_\_  
NAME OF BIDDER

\_\_\_\_\_  
STREET ADDRESS

\_\_\_\_\_  
CITY STATE ZIP

\_\_\_\_\_  
PHONE

\_\_\_\_\_  
EMAIL ADDRESS

FOR: **IRONS OAKS RAMP REPLACEMENT**

By submission of its bid, the Bidder acknowledges, agrees, represents, declares and warrants:

- A. That he has carefully examined the written Specifications and Drawings and is thoroughly familiar therewith, and that he has visited the site of the proposed Work to arrive at a clear understanding of the conditions under which the Work is to be done, and that he has compared the site with the Drawings and Specifications and has satisfied himself as to all conditions affecting the execution of the Work;
- B. That all modifications have been submitted with this bid;
- C. That he has checked carefully the bid figures and understands that he shall be responsible for any errors or omissions based on these Specifications and alternates as submitted on the Bid Proposal Form;
- D. That it is understood and agreed that the Homewood-Flossmoor Park District reserves the right to accept or reject any or all bids, or to combine or separate any section or work, and to waive any technicalities;
- E. To hold the bid open for sixty (60) days subsequent to the date of the bid opening;
- F. To enter into and execute a Contract with the Owner within ten (10) days after the date of the Notice of Award, if awarded on the basis of this bid, and in connection therewith to:
  - (a) Furnish all bonds and insurance required by the Contract Documents;
  - (b) Accomplish the Work in accordance with the Contract Documents; and
  - (c) Complete the Work within the time requirements as set forth in the Bid Documents.



Name and Title of Authorized Agent  
if Corporation or Partnership (Print): \_\_\_\_\_

\_\_\_\_\_  
Full Name and Title of Bidder (Signature)

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City/State/Zip

\_\_\_\_\_  
Email

Phone \_\_\_\_\_

## LIST OF SUBCONTRACTORS

Bidder submits a list of subcontractors for each trade relative to the Work to be performed under the Contract with the District, and agrees that if selected the successful Contractor, the Bidder will promptly confer with the District's agents on the question of which subcontractors the Bidder proposes to use, including submission of their qualifications. It is agreed that the District may substitute for any proposed subcontractor, another subcontractor for the trade against whose standing and ability the Bidder makes no objection in writing, and the Bidder will use all such finally selected subcontractors at the amount named in their respective subcontracts, and be in every way responsible for them and their work as if they had been originally named in the Bidder's bid, the unit, total and alternate Contract prices being adjusted to confirm thereto.

Subcontractor Name & Address                      Classification of Work                      Amount of Subcontract

1.		
2.		
3.		
4.		

## BIDDER'S REFERENCE LIST

Each Bidder must list the name, address, phone number and project name for at least three (3) projects performed for governmental entities of similar scope and complexity as this Project in the past five (5) years. Bidder may include, as a separate attachment, additional information or references on projects completed.

1.

\_\_\_\_\_  
Name of Park District, School District, or Municipality

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
E-Mail

\_\_\_\_\_  
Description of Work performed

\_\_\_\_\_  
Project Value

2.

\_\_\_\_\_  
Name of Park District, School District, or Municipality

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
E-Mail

\_\_\_\_\_  
Description of Work performed

\_\_\_\_\_  
Project Value

3.

\_\_\_\_\_  
Name of Park District, School District, Municipality

\_\_\_\_\_  
Contact Person

\_\_\_\_\_  
Phone Number

\_\_\_\_\_  
E-Mail

\_\_\_\_\_  
Description of Work performed

\_\_\_\_\_  
Project Value

## CONTRACTOR COMPLIANCE AND CERTIFICATIONS ATTACHMENT

**Note: The following certifications form an integral part of the Agreement between the Owner and Contractor. Breach by Contractor of any of the certifications may result in immediate termination of the Contractor's services by Owner.**

THE UNDERSIGNED CONTRACTOR HEREBY ACKNOWLEDGES, CERTIFIES, AFFIRMS AND AGREES AS FOLLOWS:

- A. Contractor has carefully read and understands the contents, purpose and legal effect of this document as stated above and hereafter in this document. The certifications contained herein are true, complete and correct in all respects.
- B. Contractor shall abide by and comply with, and in contracts which it has with all persons providing any of the services or Work on this Project on its behalf shall require compliance with, all applicable Federal, State and local laws and rules and regulations including without limitation those relating to 1) fair employment practices, affirmative action and prohibiting discrimination in employment; 2) workers' compensation; 3) workplace safety; 4) wages and claims of laborers, mechanics and other workers, agents, or servants in any manner employed in connection with contracts involving public funds or the development or construction of public works, buildings or facilities; and 5) steel products procurement.
- C. All contracts for this Project are subject to the provisions of the Illinois Prevailing Wage Act (820 ILCS 130/0.01 *et seq.*), providing for the payment of the prevailing rate of wage to all laborers, workmen and mechanics engaged in the Work. Contractor shall pay prevailing rates of wages in accordance with the Illinois Department of Labor's wage determination and any subsequent determinations issued by the Illinois Department of Labor, all in accordance with applicable law. These revisions may be accessed by computer at <http://labor.illinois.gov/>. Contractor is responsible for determining the applicable prevailing wage rates at the time of bid submission and at the time of performance of the Work. Failure of Contractor to make such determination shall not relieve it of its obligations in accordance with the Contract Documents. Contractor shall also comply with all other requirements of the Act including without limitation those pertaining to inclusion of required language in subcontracts, job site posting, maintenance and submission of certified payroll records and inspection of records. Contractor is not barred from entering into public contracts under Section 11a of the Illinois Prevailing Wage Act due to its having been found to have disregarded its obligations under the Act.
- D. To the best of Contractor's knowledge, no officer or employee of Contractor has been convicted of bribery or attempting to bribe an officer or employee of the State of Illinois, or any unit of local government, nor has any officer or employee made an admission of guilt of such conduct which is a matter of record.
- E. Contractor is not barred from bidding on or entering into public contracts due to having been convicted of bid-rigging or bid rotating under paragraphs 33E-3 or 33E-4 of the Illinois Criminal Code. Contractor also certifies that no officers or employees of the Contractor have been so convicted and that Contractor is not the successor company or a new company created by the officers or owners of one so convicted. Contractor further certifies that any such conviction occurring after the date of this certification will be reported to the Owner, immediately in writing, if it occurs during the bidding process, or otherwise prior to entering into the Contract therewith.
- F. Pursuant to the Illinois Human Rights Act (775 ILCS 5/2-105), Contractor has a written sexual harassment policy that includes, at a minimum, the following information: (i) a statement on the illegality of sexual harassment; (ii) the definition of sexual harassment under State law; (iii) a description of sexual harassment

utilizing examples; (iv) the Contractor's internal complaint process including penalties; (v) the legal recourse, investigative and complaint process available through the Illinois Department of Human Rights and the Human Rights Commission and directions on how to contact both; and (vi) protection against retaliation as provided by Section 6-101 of the Illinois Human Rights Act. Contractor further certifies that such policy shall remain in full force and effect. A copy of the policy shall be provided to the Illinois Department of Human Rights upon request.

- G. (i) Contractor's bid proposal was made without any connection or common interest in the profits anticipated to be derived from the Contract by Contractor with any other persons submitting any bid or proposal for the Contract; (ii) the Contract terms are in all respects fair and the Contract will be entered into by Contractor without collusion or fraud; (iii) no official, officer or employee of the Owner has any direct or indirect financial interest in Contractor's bid proposal or in Contractor, (iv) the Contractor has not directly or indirectly provided, and shall not directly or indirectly provide, funds or other consideration to any person or entity (including, but not limited to, the Owner and the Owner's employees and agents), to procure improperly special or unusual treatment with respect to this Agreement or for the purpose of otherwise improperly influencing the relationship between the Owner and the Contractor. Additionally, the Contractor shall cause all of its officers, directors, employees, (as the case may be) to comply with the restrictions contained in the preceding sentence.
- H. Contractor knows and understands the Equal Employment Opportunity Clause administrated by the Illinois Department of Human Rights, which is incorporated herein by this reference, and agrees to comply with the provisions thereof. Contractor further certifies that Contractor is an "equal opportunity employer" as defined by Section 2000 (e) of Chapter 21, Title 42 of the United States Code Annotated and Executive Orders #11246 and #11375 as amended, which are incorporated herein by this reference.
- I. Neither Contractor nor any substantially owned affiliated company is participating or shall participate in an international boycott in violation of the provisions of the U.S. Export Administration Act of 1979 or the regulations of the U.S. Department of Commerce promulgated under that Act.
- J. Contractor is not barred from contracting with the Owner because of any delinquency in the payment of any tax administrated by the Illinois Department of Revenue, unless it is being contested. Contractor further certifies that it understands that making a false statement regarding delinquency in taxes is a Class A misdemeanor and, in addition, voids the Contract and allows the Owner, a municipal entity, to recover in a civil action all amounts paid to the Contractor.
- K. If Contractor has 25 or more employees at the time of letting of the Contract, Contractor knows, understands and acknowledges its obligations under the Illinois Drug Free Workplace Act (30 ILCS 580/1 *et seq.*) and certifies that it will provide a drug-free workplace by taking the actions required under, and otherwise implementing on a continuing basis, Section 3 of the Drug Free Workplace Act. Contractor further certifies that it has not been debarred and is not ineligible for award of this Contract as the result of a violation of the Illinois Drug Free Workplace Act.
- L. Contractor knows, understands and acknowledges its obligations under the Substance Abuse Prevention on Public Works Act, 820 ILCS 265/1 *et seq.* A true and complete copy of Contractor's Substance Abuse Prevention Program Certification is attached to and made a part of this Contractor Compliance and Certification Attachment.
- M. The Contractor shall comply with the requirements and provisions of the Freedom of Information Act (5 ILCS 140/1 *et. seq.*) and, upon request of the Homewood-Flossmoor Park District's designated Freedom of Information Act Officer (FOIA Officer), Contractor shall within two (2) business days of said request, turn

over to the FOIA Officer any record in the possession of the Contractor that is deemed a public record under FOIA.

CONTRACTOR

By: \_\_\_\_\_

Its: \_\_\_\_\_

STATE OF \_\_\_\_\_ )

)ss

COUNTY OF \_\_\_\_\_ )

I, the undersigned, a notary public in and for the State and County, aforesaid, hereby certify that \_\_\_\_\_ appeared before me this day and, being first duly sworn on oath, acknowledged that he/she executed the foregoing instrument as his/her free act and deed and as the act and deed of the Contractor.

Dated: \_\_\_\_\_

\_\_\_\_\_  
(Notary Public)

(SEAL)

## SUBSTANCE ABUSE PREVENTION PROGRAM CERTIFICATION

The Substance Abuse Prevention on Public Works Projects Act, 820 ILCS 265/1 et seq., ("Act") prohibits any employee of the Contractor or any Subcontractor on a public works project to use, possess or be under the influence of a drug or alcohol, as those terms are defined in the Act, while performing work on the project. The Contractor/Subcontractor [circle one], by its undersigned representative, hereby certifies and represents to the Homewood-Flossmoor Park District that [Contractor/Subcontractor must complete either Part A or Part B below]:

A. The Contractor/Subcontractor [circle one] has in place for all of its employees not covered by a collective bargaining agreement that deals with the subject of the Act a written substance abuse prevention program, a true and correct copy of which is attached to this certification, which meets or exceeds the requirements of the Substance Abuse Prevention on Public Works Act, 820 ILCS 265/1 et seq. [Contractor/Subcontractor must attach a copy of its substance abuse prevention program to this Certification.]

\_\_\_\_\_  
Name of Contractor/Subcontractor (print or type)

\_\_\_\_\_  
Name and Title of Authorized Representative (print or type)

\_\_\_\_\_  
Signature of Authorized Representative

Dated: \_\_\_\_\_

B. The Contractor/Subcontractor [circle one] has one or more collective bargaining agreements in effect for all of its employees that deal with the subject matter of the Substance Abuse Prevention on Public Works Projects Act, 820 ILCS 265/1 et seq.

\_\_\_\_\_  
Name of Contractor/Subcontractor (print or type)

\_\_\_\_\_  
Name and Title of Authorized Representative (print or type)

\_\_\_\_\_  
Signature of Authorized Representative

Dated: \_\_\_\_\_

## **IMPORTANT NOTICE OF RESPONSIBILITY FOR PERIODIC REVISIONS TO PREVAILING WAGE RATES**

Revisions of the Prevailing Wage Rates are made periodically by the Illinois Department of Labor (IDOL). As required by the Illinois Prevailing Wage Act, the contractor/subcontractor has an obligation to check IDOL's web site for revisions to prevailing wage rates. These revisions may be accessed by computer at <http://labor.illinois.gov/>. Bidders and contractors performing work on this Project are responsible for determining the applicable prevailing wage rates at the time of bid submission and performance of the Work. Failure of a bidder/contractor to make such determination shall not relieve it of its obligations in accordance with the Contract Documents. In consideration for the award to it of the contract for this Project, the contractor agrees that the foregoing notice satisfies any obligation of the public body in charge of this Project to notify the contractor of periodic changes in the prevailing wage rates and the contractor agrees to assume and be solely responsible for, as a material obligation of the contractor under the contract, the obligation to determine periodic revisions of the prevailing wage rates, to notify its subcontractors of such revisions, to post such revisions as required for the posting of wage rates under the Act, and to pay and require its subcontractors to pay wages in accordance with such revised rates.

## Owner/Contractor Agreement

## Technical Specifications

Remove existing ramp and brick walls and replace them with an expanded ramp with curbing and metal handrails, per the attached drawings and specifications. Ramp must be compliant with ADA regulations.

See attached:

SECTION 033000 - CAST-IN-PLACE CONCRETE

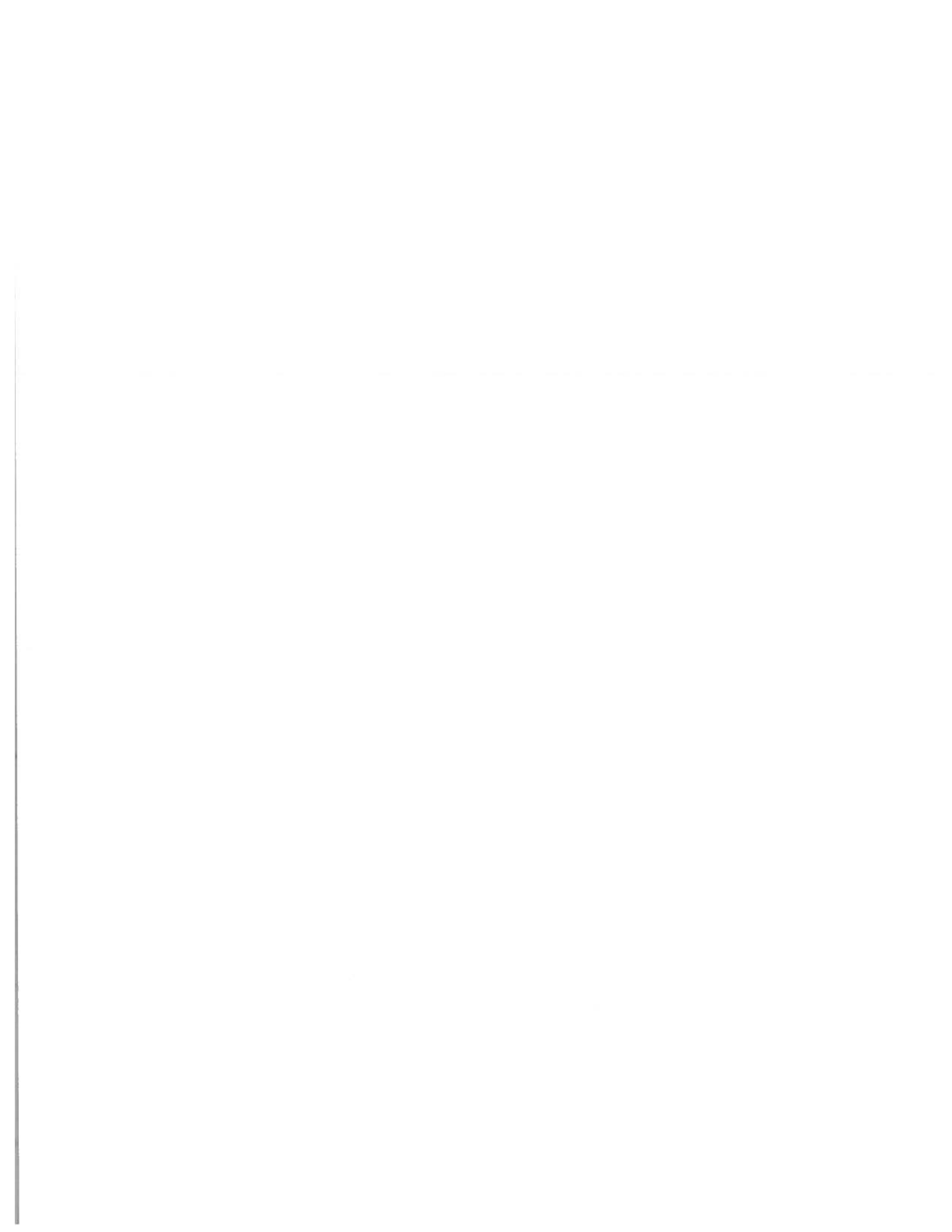
SECTION 055213 - PIPE AND TUBE RAILINGS

IO Ramp Replacement Diagram S1.0

IO Ramp Replacement Diagram S1.1

Work area must be cleared to allow for the safe continuation of weekend rentals and activities during this time.

4846-8865-3741, v. 3



## SECTION 033000 - CAST-IN-PLACE CONCRETE

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

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

#### 1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

#### 1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
  - 1. Before submitting design mixtures, review concrete design mixture and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
    - a. Contractor's superintendent.
    - b. Independent testing agency responsible for concrete design mixtures.
    - c. Ready-mix concrete manufacturer.
    - d. Concrete Subcontractor.
    - e. Special concrete finish Subcontractor.

#### 1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing Drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
  1. Location of construction joints is subject to approval of the Architect.

#### 1.6 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each of the following, signed by manufacturers:
  1. Cementitious materials.
  2. Admixtures.
  3. Form materials and form-release agents.
  4. Steel reinforcement and accessories.
  5. Curing compounds.
  6. Floor and slab treatments.
  7. Bonding agents.
  8. Adhesives.
  9. Semirigid joint filler.
  10. Joint-filler strips.
  11. Repair materials.
- B. Material Test Reports: For the following, from a qualified testing agency:
  1. Aggregates: Include service record data indicating absence of deleterious expansion of concrete due to alkali aggregate reactivity.
- C. Field quality-control reports.
- D. Minutes of preinstallation conference.

#### 1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified according to ASTM C1077 and ASTM E329 for testing indicated.
1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
  2. Personnel performing laboratory tests shall be ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor shall be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- 1.8 DELIVERY, STORAGE, AND HANDLING
- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.
- 1.9 FIELD CONDITIONS
- A. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. When average high and low temperature is expected to fall below 40 deg F (4.4 deg C) for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301 (ACI 301M).
  2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
  3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 (ACI 301M) and ACI 305.1 (ACI 305.1M), and as follows:
1. Maintain concrete temperature below 90 deg F (32 deg C) at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
  2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

## PART 2 - PRODUCTS

### 2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301 (ACI 301M).
  2. ACI 117 (ACI 117M).

### 2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
1. Plywood, metal, or other approved panel materials.
  2. Exterior-grade plywood panels, suitable for concrete forms, complying with DOC PS 1, and as follows:
    - a. Structural 1, B-B or better; mill oiled and edge sealed.
    - b. B-B (Concrete Form), Class 1 or better; mill oiled and edge sealed.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch (19 by 19 mm), minimum.
- D. Form-Release Agent: Commercially formulated form-release agent that does not bond with, stain, or adversely affect concrete surfaces and does not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- E. Form Ties: Factory-fabricated, removable or snap-off glass-fiber-reinforced plastic or metal form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that leave no corrodible metal closer than 1 inch (25 mm) to the plane of exposed concrete surface.
  2. Furnish ties that, when removed, leave holes no larger than 1 inch (25 mm) in diameter in concrete surface.

### 2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60 (Grade 420), deformed.

- B. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, plain, fabricated from as-drawn steel wire into flat sheets.

#### 2.4 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, Grade 60 (Grade 420), plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:
  - 1. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

#### 2.5 CONCRETE MATERIALS

- A. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- B. Cementitious Materials:
  - 1. Portland Cement: ASTM C150/C150M, Type I Type III, gray.
  - 2. Fly Ash: ASTM C618, Class F or C.
- C. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source with documented service record data of at least 10 years' satisfactory service in similar applications and service conditions using similar aggregates and cementitious materials.
  - 1. Maximum Coarse-Aggregate Size:
    - a. 1-1/2 inches (38 mm) nominal for footings.
    - b. 1 inch (25 mm) nominal for walls and slabs.
  - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- D. Air-Entraining Admixture: ASTM C260/C260M.
- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures and that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
  - 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
  - 2. Retarding Admixture: ASTM C494/C494M, Type B.
  - 3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
  - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.

5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
  6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- F. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.
- G. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
- H. Water: ASTM C94/C94M and potable.

## 2.6 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. (305 g/sq. m) when dry.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.
  1. Products: Subject to compliance with requirements, provide one of the following:
    - a. Anti-Hydro International, Inc; A-H Curing Compound #2 DR WB.
    - b. ChemMasters, Inc; Safe-Cure Clear DR.
    - c. Dayton Superior; Clear Cure VOC J7WB.
    - d. Euclid Chemical Company (The); an RPM company; Kurez DR VOX.
    - e. Kaufman Products, Inc; ThinFilm 420.
    - f. Lambert Corporation; AQUA KURE - CLEAR.
    - g. Laticrete International, Inc.; L&M CURE R.
    - h. Nox-Crete Products Group; Res-Cure DH 100.
    - i. SpecChem, LLC; PaveCure Rez.
    - j. TK Products; DC WB Dissipating Cure 2519.
    - k. Vexcon Chemicals Inc.; Certi-Vex Envio Cure 100.
    - l. W.R. Meadows, Inc; 1100-CLEAR.

## 2.7 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork.

- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, aromatic polyurea with a Type A shore durometer hardness range of 90 to 95 according to ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- D. Reglets: Fabricate reglets of not less than 0.022-inch- (0.55-mm-) thick, galvanized-steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.
- E. Dovetail Anchor Slots: Hot-dip galvanized-steel sheet, not less than 0.034 inch (0.85 mm) thick, with bent tab anchors. Temporarily fill or cover face opening of slots to prevent intrusion of concrete or debris.

## 2.8 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch (3.2 mm) and that can be feathered at edges to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
  - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by underlayment manufacturer.
  - 4. Compressive Strength: Not less than 4100 psi (29 MPa) at 28 days when tested according to ASTM C109/C109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/4 inch (6.4 mm) and that can be filled in over a scarified surface to match adjacent floor elevations.
  - 1. Cement Binder: ASTM C150/C150M, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C219.
  - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
  - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch (3.2 to 6 mm) or coarse sand as recommended by topping manufacturer.
  - 4. Compressive Strength: Not less than 5000 psi (34.5 MPa) at 28 days when tested according to ASTM C109/C109M.

## 2.9 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301 (ACI 301M).

1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
  1. Fly Ash: 25 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
  1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
  2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

## 2.10 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Footings: Normal-weight concrete.
  1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
  2. Maximum W/C Ratio: 0.50.
  3. Slump Limit: 4 inches (100 mm) 8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25 mm).
  4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch (25-mm) nominal maximum aggregate size.
- B. Foundation Walls: Normal-weight concrete.
  1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
  2. Maximum W/C Ratio: 0.50.
  3. Slump Limit: 4 inches (100 mm) 8 inches (200 mm) for concrete with verified slump of 2 to 4 inches (50 to 100 mm) before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch (25 mm).
  4. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch (25-mm) nominal maximum aggregate size.
- C. Slabs-on-Grade: Normal-weight concrete.
  1. Minimum Compressive Strength: 4000 psi (27.6 MPa) at 28 days.
  2. Maximum W/C Ratio: 0.50.
  3. Minimum Cementitious Materials Content: 470 lb/cu. yd. (279 kg/cu. m).
  4. Slump Limit: 5 inches (125 mm), plus or minus 1 inch (25 mm).
  5. Air Content: 6 percent, plus or minus 1.5 percent at point of delivery for 1-inch (25-mm) nominal maximum aggregate size.

## 2.11 FABRICATING REINFORCEMENT

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

## 2.12 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C94/C94M and ASTM C1116/C1116M, and furnish batch ticket information.
  - 1. When air temperature is between 85 and 90 deg F (30 and 32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

## PART 3 - EXECUTION

### 3.1 FORMWORK INSTALLATION

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
  - 1. Class A, 1/8 inch (3.2 mm) for smooth-formed finished surfaces.
  - 2. Class C, 1/2 inch (13 mm) for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Construct forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast-concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
  - 1. Install keyways, reglets, recesses, and the like, for easy removal.
  - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.

- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

### 3.2 EMBEDDED ITEM INSTALLATION

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
  - 1. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.
  - 2. Install dovetail anchor slots in concrete structures as indicated.

### 3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations, and curing and protection operations need to be maintained.
  - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that support weight of concrete in place until concrete has achieved at least 70 percent of its 28-day design compressive strength.
  - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material are not acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

### 3.4 STEEL REINFORCEMENT INSTALLATION

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
  - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded-wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

### 3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
  - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
  - 2. Form keyed joints as indicated. Embed keys at least 1-1/2 inches (38 mm) into concrete.
  - 3. Locate joints for beams, slabs, joists, and girders in the middle third of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
  - 4. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
  - 5. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
  - 6. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:

1. Grooved Joints: Form contraction joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch (3.2 mm). Repeat grooving of contraction joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated.
  2. Terminate full-width joint-filler strips not less than 1/2 inch (13 mm) or more than 1 inch (25 mm) below finished concrete surface where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
  3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length to prevent concrete bonding to one side of joint.

### 3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections are completed.
- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301 (ACI 301M).
1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
1. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
  2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301 (ACI 301M).
  3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches (150 mm) into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.

- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
  - 1. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
  - 2. Maintain reinforcement in position on chairs during concrete placement.
  - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
  - 4. Slope surfaces uniformly to drains where required.
  - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.

### 3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
  - 1. Apply to concrete surfaces exposed to public view.
- C. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

### 3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and elsewhere as indicated.
  - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 MISCELLANEOUS CONCRETE ITEM INSTALLATION

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

3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305.1 (ACI 305.1M) for hot-weather protection during curing.
- B. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for remainder of curing period.
- C. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- D. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
  - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
    - a. Water.
    - b. Continuous water-fog spray.
    - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch (300-mm) lap over adjacent absorptive covers.
  - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches (300 mm), and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
  - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - a. Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer.

### 3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
  - 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches (50 mm) deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

### 3.12 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 (1.18-mm) sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
  - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch (13 mm) in any dimension to solid concrete. Limit cut depth to 3/4 inch (19 mm). Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
  - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar matches surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
  - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
  - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch (0.25 mm) wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.

2. After concrete has cured at least 14 days, correct high areas by grinding.
  3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
  4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
  5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch (6 mm) to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
  6. Repair defective areas, except random cracks and single holes 1 inch (25 mm) or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch (19-mm) clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
  7. Repair random cracks and single holes 1 inch (25 mm) or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.
- 3.13 FIELD QUALITY CONTROL
- A. Special Inspections: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
1. Steel reinforcement placement.
  2. Verification of use of required design mixture.
  3. Concrete placement, including conveying and depositing.
  4. Curing procedures and maintenance of curing temperature.

- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C172/C172M shall be performed according to the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd. (4 cu. m), but less than 25 cu. yd. (19 cu. m), plus one set for each additional 50 cu. yd. (38 cu. m) or fraction thereof.
  2. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. (76 cu. m) or fraction thereof of each concrete mixture placed each day.
    - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
  3. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
  4. Air Content: ASTM C231/C231M, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  5. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below or 80 deg F (27 deg C) and above, and one test for each composite sample.
  6. Unit Weight: ASTM C567/C567M, fresh unit weight of structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
  7. Compression Test Specimens: ASTM C31/C31M.
    - a. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
  8. Compressive-Strength Tests: ASTM C39/C39M; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days.
    - a. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
    - b. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
  9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
  10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi (3.4 MPa).
  11. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive

- strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
12. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
  13. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
  14. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
  15. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

END OF SECTION 033000

## SECTION 055213 - PIPE AND TUBE RAILINGS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. Section Includes:
  - 1. Steel pipe and tube railings.

#### 1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorages for railings. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- C. Schedule installation so wall attachments are made only to completed walls. Do not support railings temporarily by any means that do not satisfy structural performance requirements.

#### 1.4 ACTION SUBMITTALS

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

1.5 INFORMATIONAL SUBMITTALS

- A. Welding certificates.
- B. Mill Certificates: Signed by manufacturers of stainless-steel products certifying that products furnished comply with requirements.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers certifying that shop primers are compatible with topcoats.

1.6 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
  - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

1.8 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a licensed structural engineer to design railings, including attachment to building construction.
- B. Structural Performance: Railings, including attachment to building construction, shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated:
  - 1. Handrails and Top Rails of Guards:
    - a. Uniform load of 50 lbf/ ft. (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.
- C. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.
1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

## 2.2 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth surfaces, without seam marks, roller marks, rolled trade names, stains, discolorations, or blemishes.
- B. Brackets, Flanges, and Anchors: Cast or formed metal of same type of material and finish as supported rails unless otherwise indicated.
1. Provide type of bracket with predrilled hole for exposed bolt anchorage and that provides 1-1/2-inch (38-mm) clearance from inside face of handrail to finished wall surface.

## 2.3 STEEL AND IRON

- A. Tubing: ASTM A 500 (cold formed) or ASTM A 513.
- B. Pipe: ASTM A 53/A 53M, Type F or Type S, Grade A, Standard Weight (Schedule 40), unless another grade and weight are required by structural loads.
1. Provide galvanized finish for exterior installations and where indicated.
- C. Plates, Shapes, and Bars: ASTM A 36/A 36M.

## 2.4 FASTENERS

- A. General: Provide the following:
1. Hot-Dip Galvanized Railings: Type 304 stainless-steel or hot-dip zinc-coated steel fasteners complying with ASTM A 153/A 153M or ASTM F 2329 for zinc coating.
  2. Provide exposed fasteners with finish matching appearance, including color and texture, of railings.
- B. Fasteners for Anchoring Railings to Other Construction: Select fasteners of type, grade, and class required to produce connections suitable for anchoring railings to other types of construction indicated and capable of withstanding design loads.
- C. Fasteners for Interconnecting Railing Components:

1. Provide concealed fasteners for interconnecting railing components and for attaching them to other work, unless exposed fasteners are unavoidable or are the standard fastening method for railings indicated.
  2. Provide square or hex socket flat-head machine screws for exposed fasteners unless otherwise indicated.
- D. Post-Installed Anchors: Torque-controlled expansion anchors or chemical anchors capable of sustaining, without failure, a load equal to 6 times the load imposed when installed in unit masonry and 4 times the load imposed when installed in concrete, as determined by testing according to ASTM E 488/E 488M, conducted by a qualified independent testing agency.
1. Material for Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633 or ASTM F 1941 (ASTM F 1941M), Class Fe/Zn 5, unless otherwise indicated.

## 2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Etching Cleaner for Galvanized Metal: Complying with MPI#25.
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.
- D. Shop Primer for Galvanized Steel: Primer formulated for exterior use over zinc-coated metal and compatible with finish paint systems indicated.
- E. Epoxy Intermediate Coat: Complying with MPI #77 and compatible with primer and topcoat.
- F. Polyurethane Topcoat: Complying with MPI #72 and compatible with undercoat.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, nonstaining, noncorrosive, nongaseous grout complying with ASTM C 1107/C 1107M. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Anchoring Cement: Factory-packaged, nonshrink, nonstaining, hydraulic-controlled expansion cement formulation for mixing with water at Project site to create pourable anchoring, patching, and grouting compound.
  1. Water-Resistant Product: At exterior locations provide formulation that is resistant to erosion from water exposure without needing protection by a sealer or waterproof coating and that is recommended by manufacturer for exterior use.

## 2.6 FABRICATION

- A. General: Fabricate railings to comply with requirements indicated for design, dimensions, member sizes and spacing, details, finish, and anchorage, but not less than that required to support structural loads.
- B. Shop assemble railings to greatest extent possible to minimize field splicing and assembly. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for reassembly and coordinated installation. Use connections that maintain structural value of joined pieces.
- 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 work true to line and level with accurate angles and surfaces.
- E. Fabricate connections that are exposed to weather in a manner that excludes water. Provide weep holes where water may accumulate.
- F. Cut, reinforce, drill, and tap as indicated to receive finish hardware, screws, and similar items.
- G. Connections: Fabricate railings with either welded or nonwelded connections unless otherwise indicated.
- H. Welded Connections: Cope components at connections to provide close fit, or use fittings designed for this purpose. Weld all around at connections, including at fittings.
  - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
  - 2. Obtain fusion without undercut or overlap.
  - 3. Remove flux immediately.
  - 4. At exposed connections, finish exposed surfaces smooth and blended so no roughness shows after finishing and welded surface matches contours of adjoining surfaces.
- I. Nonwelded Connections: Connect members with concealed mechanical fasteners and fittings. Fabricate members and fittings to produce flush, smooth, rigid, hairline joints.
  - 1. Fabricate splice joints for field connection using an epoxy structural adhesive if this is manufacturer's standard splicing method.
- J. Form Changes in Direction as Follows:
  - 1. As detailed.
  - 2. By bending or by inserting prefabricated elbow fittings.
  - 3. By flush bends or by inserting prefabricated flush-elbow fittings.

- K. 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.
- L. Close exposed ends of railing members with prefabricated end fittings.
- M. Provide wall returns at ends of wall-mounted handrails unless otherwise indicated. Close ends of returns unless clearance between end of rail and wall is 1/4 inch (6 mm) or less.
- N. Brackets, Flanges, Fittings, and Anchors: Provide wall brackets, flanges, miscellaneous fittings, and anchors to interconnect railing members to other work unless otherwise indicated.
  - 1. At brackets and fittings fastened to plaster or gypsum board partitions, provide crush-resistant fillers or other means to transfer loads through wall finishes to structural supports and prevent bracket or fitting rotation and crushing of substrate.
- O. Provide inserts and other anchorage devices for connecting railings to concrete or masonry work. Fabricate anchorage devices capable of withstanding loads imposed by railings. Coordinate anchorage devices with supporting structure.
- P. For railing posts set in concrete, provide stainless-steel sleeves not less than 6 inches (150 mm) long with inside dimensions not less than 1/2 inch (13 mm) greater than outside dimensions of post, with metal plate forming bottom closure.
- Q. Toe Boards: Where indicated, provide toe boards at railings around openings and at edge of open-sided floors and platforms. Fabricate to dimensions and details indicated.

## 2.7 STEEL AND IRON FINISHES

- A. Galvanized Railings:
  - 1. Hot-dip galvanize exterior steel railings, including hardware, after fabrication.
  - 2. Comply with ASTM A 123/A 123M for hot-dip galvanized railings.
  - 3. Comply with ASTM A 153/A 153M for hot-dip galvanized hardware.
  - 4. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
  - 5. Fill vent and drain holes that are exposed in the finished Work, unless indicated to remain as weep holes, by plugging with zinc solder and filing off smooth.
- B. For galvanized railings, provide hot-dip galvanized fittings, brackets, fasteners, sleeves, and other ferrous components.
- C. Preparing Galvanized Railings for Shop Priming: After galvanizing, thoroughly clean railings of grease, dirt, oil, flux, and other foreign matter, and treat with etching cleaner.
- D. Primer Application: Apply shop primer to prepared surfaces of railings unless otherwise indicated. Comply with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of

Steel," for shop painting. Primer need not be applied to surfaces to be embedded in concrete or masonry.

- E. High-Performance Coating: Apply epoxy intermediate and polyurethane topcoats to prime-coated surfaces. Comply with coating manufacturer's written instructions and with requirements in SSPC-PA 1, "Shop, Field, and Maintenance Painting of Steel," for shop painting. Apply at spreading rates recommended by coating manufacturer.

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

### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Examine plaster and gypsum board assemblies, where reinforced to receive anchors, to verify that locations of concealed reinforcements are clearly marked for Installer. Locate reinforcements and mark locations if not already done.

#### 3.2 INSTALLATION, GENERAL

- A. Fit exposed connections together to form tight, hairline joints.
- B. Perform cutting, drilling, and fitting required for installing railings. Set railings accurately in location, alignment, and elevation; measured from established lines and levels and free of rack.
  - 1. Do not weld, cut, or abrade surfaces of railing components that are coated or finished after fabrication and that are intended for field connection by mechanical or other means without further cutting or fitting.
  - 2. Set posts plumb within a tolerance of 1/16 inch in 3 feet (2 mm in 1 m).
  - 3. Align rails so variations from level for horizontal members and variations from parallel with rake of steps and ramps for sloping members do not exceed 1/4 inch in 12 feet (6 mm in 3.5 m).
- C. Control of Corrosion: Prevent galvanic action and other forms of corrosion by insulating metals and other materials from direct contact with incompatible materials.
  - 1. Coat, with a heavy coat of bituminous paint, concealed surfaces of aluminum that are in contact with grout, concrete, masonry, wood, or dissimilar metals.
- D. Adjust railings before anchoring to ensure matching alignment at abutting joints.
- E. Fastening to In-Place Construction: Use anchorage devices and fasteners where necessary for securing railings and for properly transferring loads to in-place construction.

### 3.3 RAILING CONNECTIONS

- A. Nonwelded Connections: Use mechanical or adhesive joints for permanently connecting railing components. Seal recessed holes of exposed locking screws using plastic cement filler colored to match finish of railings.
- B. Welded Connections: Use fully welded joints for permanently connecting railing components. Comply with requirements for welded connections in "Fabrication" Article whether welding is performed in the shop or in the field.
- C. Expansion Joints: Install expansion joints at locations indicated but not farther apart than required to accommodate thermal movement. Provide slip-joint internal sleeve extending 2 inches (50 mm) beyond joint on either side, fasten internal sleeve securely to one side, and locate joint within 6 inches (150 mm) of post.

### 3.4 ANCHORING POSTS

- A. Use metal sleeves preset and anchored into concrete for installing posts. After posts are inserted into sleeves, fill annular space between post and sleeve with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- B. Form or core-drill holes not less than 5 inches (125 mm) deep and 3/4 inch (20 mm) larger than OD of post for installing posts in concrete. Clean holes of loose material, insert posts, and fill annular space between post and concrete with nonshrink, nonmetallic grout or anchoring cement, mixed and placed to comply with anchoring material manufacturer's written instructions.
- C. Leave anchorage joint exposed with 1/8-inch (3-mm) buildup, sloped away from post.
- D. Anchor posts to metal surfaces with oval flanges, angle type, or floor type as required by conditions, connected to posts and to metal supporting members as follows:
  - 1. For steel pipe railings, weld flanges to post and bolt to metal supporting surfaces.
- E. Install removable railing sections, where indicated, in slip-fit metal sockets cast in concrete.

### 3.5 ATTACHING RAILINGS

- A. Attach railings to wall with wall brackets. Locate brackets as indicated or, if not indicated, at spacing required to support structural loads.
- B. Secure wall brackets and railing end flanges to building construction as follows:
  - 1. For concrete and solid masonry anchorage, use drilled-in expansion shields and hanger or lag bolts.

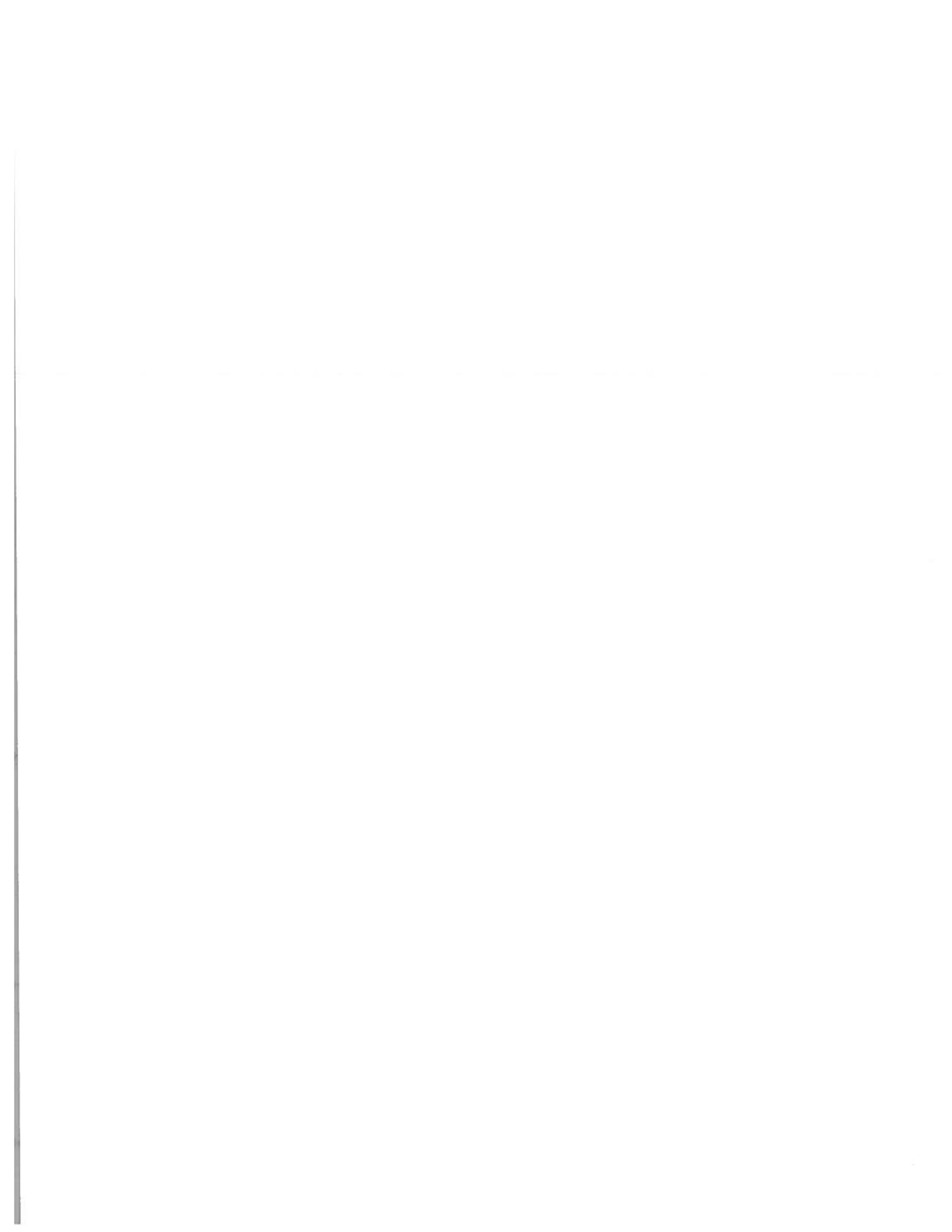
3.6 ADJUSTING AND CLEANING

- A. Clean by washing thoroughly with clean water and soap and rinsing with clean water.
- B. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop painting to comply with SSPC-PA 1 requirements for touching up shop-painted surfaces.
  - 1. Apply by brush or spray to provide a minimum 2.0-mil (0.05-mm) dry film thickness.
- C. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas, and repair galvanizing to comply with ASTM A 780/A 780M.

3.7 PROTECTION

- A. Protect finishes of railings from damage during construction period with temporary protective coverings approved by railing manufacturer. Remove protective coverings at time of Substantial Completion.

END OF SECTION 055213



1. GENERAL NOTES:  
 1.1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE ILLINOIS CONSTRUCTION CODE AND THE ILLINOIS STRUCTURAL CODE.  
 1.2. ALL MATERIALS SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.  
 1.3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE ILLINOIS CONSTRUCTION CODE AND THE ILLINOIS STRUCTURAL CODE.  
 1.4. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE ILLINOIS CONSTRUCTION CODE AND THE ILLINOIS STRUCTURAL CODE.  
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2. MATERIALS:  
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4. FINISHES:  
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6. SPECIAL NOTES:  
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7. CONTRACTOR'S RESPONSIBILITIES:  
 7.1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS.  
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8. GENERAL NOTES:  
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