

CONTRACT DOCUMENTS  
FOR  
WEST PARK PERGOLA RESTORATION



Due: Thursday, November 17, 2011

ITB-4190

PARKS AND RECREATION SERVICES  
Administering Department

CITY OF ANN ARBOR  
301 East Huron  
Ann Arbor, Michigan 48107-8647

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ADVERTISEMENT FOR  
**WEST PARK PERGOLA RESTORATION**  
CITY OF ANN ARBOR, MICHIGAN

BID NO. 4190

Sealed Bids that include an original bid document and one additional proposal section copy will be received by the Procurement Office, Finance Services, located on the 5th floor of the Guy Larcom Municipal Building, Ann Arbor, Michigan on or before November 17, 2011 at 10:00 a.m. local time for West Park Pergola Restoration and all associated work as specified and detailed. Bids will be publicly opened and read aloud at this time. Prospective submitters are responsible for timely receipt of their proposal. Late proposals will not be considered.

Work to be done includes structure replacement of all wood members, sections of concrete walk, tile, shrub removal, wood stair repair.

Bid documents entirely downloadable on the Michigan Governmental Trade/BidNet (MITN) website at [www.govbids.org](http://www.govbids.org) and on the Purchasing page of the City of Ann Arbor's website at [www.a2gov.org](http://www.a2gov.org) on or after or after Monday, October 31, 2011. The City will not be distributing paper copies of the plan or specifications.

Each proposal shall be accompanied by a certified check, or Bid Bond by a recognized surety, in the amount of 5% of the total of the bid price. A proposal, once submitted, becomes the property of the City. In the sole discretion of the City, the City reserves the right to allow a bidder to reclaim submitted documents provided the documents are requested and retrieved no later than 48 hours prior to the scheduled bid opening.

The successful Bidder will be required to furnish satisfactory performance and labor and material bonds in the amount of 100% of the bid price and satisfactory insurance coverage.

Precondition for entering into a contract with the City of Ann Arbor is compliance with Chapter 112 of Title IX of the Code of the City of Ann Arbor. The successful Bidder may also be required to comply with Chapter 23 of Title I of the Code of the City of Ann Arbor. Further information is outlined in the contract documents.

After the time of opening, no Bid may be withdrawn for a period of 45 days. The City reserves the right to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

Any further information on bid documents may be obtained from the Procurement Office, (734) 794-6500 ext.42506.

CITY OF ANN ARBOR, MICHIGAN

**City of Ann Arbor  
LIVING WAGE ORDINANCE  
DECLARATION OF COMPLIANCE**

The Ann Arbor Living Wage Ordinance (Section 1:811-1:821 of Chapter 23 of Title I of the Code) requires that employers providing services to the City or recipients of grants for financial assistance (in amounts greater than \$10,000 in a twelve-month period of time) pay their employees who are working on the City project or grant, a minimum level of compensation known as the **Living Wage**. This wage must be paid to the employees for the length of the contract/project.

*Companies employing fewer than 5 persons and non-profits employing fewer than 10 persons are exempt from the Ordinance. If this exemption applies to your firm, please check below:*

- \_\_\_\_\_ This company is exempt due to the fact that we employ or contract with fewer than 5 individuals.
- \_\_\_\_\_ This non-profit agency is exempt due to the fact that we employ or contract with fewer than 10 employees.

The Ordinance requires that all contractors/vendors and/or grantees agree to the following terms:

a) To pay each of its employees performing work on any covered contract or grant with the City, no less than the living wage, which is defined as \$11.83/hour when health care is provided, or no less than \$13.19/hour for those employers that do *not* provide health care. It is understood that the Living Wage will be adjusted upward each year on April 30, and covered employers will be required to pay the adjusted amount thereafter. The rates stated above include the adjustment for 2011/12.

b) Please check the boxes below which apply to your workforce:

Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage without health benefits Yes \_\_\_\_\_ No \_\_\_\_\_

**OR**

Employees who are assigned to *any covered* City project or grant will be paid at or above the applicable living wage with health benefits Yes \_\_\_\_\_ No \_\_\_\_\_

c) To post a notice approved by the City regarding the Living Wage Ordinance in every work place or other location in which employees or other persons contracting for employment are working.

d) To provide the City payroll records or other documentation as requested; and,

e) To permit access to work sites to City representatives for the purposes of monitoring compliance, investigating complaints or non-compliance.

The undersigned authorized representative hereby obligates the contractor/vendor or grantee to the above stated conditions under penalty of perjury and violation of the Ordinance.

\_\_\_\_\_  
Company Name

\_\_\_\_\_  
Address City State Zip

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

\_\_\_\_\_  
Phone (area code)

\_\_\_\_\_  
Type or Print Name and Title

\_\_\_\_\_  
Email address

\_\_\_\_\_  
Date signed

**Questions about this form? Please contact:**  
Procurement Office City of Ann Arbor - 734/794-6500 fax: 734/994-1795

→ *New rate effective April 30, 2011* ←

**\$11.83** per hour  
if the employer provides health  
care benefits\*

**\$13.19** per hour  
if the employer does **NOT**  
provide health care benefits\*

Employers providing services to or for the City of Ann Arbor or recipients of grants or financial assistance from the City of Ann Arbor for a value of more than \$10,000 in a twelve-month period of time ***must pay those employees performing work on a City of Ann Arbor contract or grant, the above living wage.***

## ***ENFORCEMENT***

The City of Ann Arbor may recover back wages either administratively or through court action for the employees that have been underpaid in violation of the law. Persons denied payment of the living wage have the right to bring a civil action for damages in addition to any action taken by the City.

Violations of this Ordinance is punishable by fines of not more than \$500/violation plus costs, with each day being considered a separate violation. Additionally, the City of Ann Arbor has the right to modify, terminate, cancel or suspend a contract in the event of a violation of the Ordinance.

***For Additional Information or to File a Complaint  
Contact:  
734/794-6576***

*Health Care benefits includes those paid for by the employer or making an employer contribution toward the purchase of health care. The employee contribution must not exceed \$.50 an hour for an average work week; and the employer cost or contribution must equal no less than \$1/hr for the average work week.*

**The law requires employers to display this poster where employees can readily see it.**

CITY OF ANN ARBOR PROCUREMENT OFFICE  
**CONTRACT COMPLIANCE FORM**  
*Entire Organization (Totals for All Locations where applicable)*

Form #1

Name of Company/Organization \_\_\_\_\_ Date Form Completed \_\_\_\_\_

Name and Title of Person Completing this Form \_\_\_\_\_ \ Name of President \_\_\_\_\_

Address \_\_\_\_\_ County \_\_\_\_\_ Phone # \_\_\_\_\_  
 (Street address) (City) (State) (Zip) (Area Code)

Fax# \_\_\_\_\_ Email Address \_\_\_\_\_  
 (Area Code)

**EMPLOYMENT DATA**

Job Categories	<b>Number of Employees</b>												
	<b>Male</b>						<b>Female</b>						<b>TOTAL COLUMNS A-M</b>
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific	American Indian or Alaskan	
<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>		
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
<b>TOTAL</b>													
<b>PREVIOUS YEAR TOTAL</b>													

CITY OF ANN ARBOR PROCUREMENT OFFICE  
**CONTRACT COMPLIANCE FORM**

**Form #2**

*Local Office (Only those employees that will do local or on-site work, if applicable)*

Name of Company/Organization \_\_\_\_\_ Date Form Completed \_\_\_\_\_

Name and Title of Person Completing this Form \_\_\_\_\_

Fax# \_\_\_\_\_ Email Address \_\_\_\_\_  
 (Area Code)

**EMPLOYMENT DATA**

Job Categories	<b>Number of Employees</b>												
	<b>Male</b>						<b>Female</b>						<b>TOTAL COLUMNS A-M</b>
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific	American Indian or Alaskan Native	
	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>	<b>G</b>	<b>H</b>	<b>I</b>	<b>J</b>	<b>K</b>	<b>L</b>	<b>M</b>	
Exec./Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
<b>TOTAL</b>													
<b>PREVIOUS YEAR TOTAL</b>													

## **NOTICE OF PRE-BID CONFERENCE**

A pre-bid meeting will be held at West Park on Thursday, November 10 at 10:00 a.m. The pergola is located on Miller between Chapin and 7th, however, as there is no parking lot in this area, please park in the West Park parking lot on Chapin St., between Huron St. and Miller Ave, and walk up the wooden stairs on the north side of the park to the pergola (located behind the baseball backstop).

Questions may be emailed to Amy Kuras at [akuras@a2gov.org](mailto:akuras@a2gov.org). If any questions arise whose answers constitute modifications to the bid documents, an addendum will be issued.



## INSTRUCTIONS TO BIDDERS

### General

Work to be done under this Contract is generally described through the detailed specifications and must be completed fully in accordance with the contract documents. All work to be done under this Contract is located in or near the City of Ann Arbor.

The City shall make available to all prospective Bidders, prior to receipt of the Bids, access to the area in which the work is to be performed. Advance notice should be given to the Administering Department in cases where access to the site must be arranged by the City.

Any proposal which does not fully conform with these instructions may be rejected.

### Proposals

Proposals must be submitted on the "Proposal Forms" and "Bid Forms" provided, with each blank properly filled in. **Sealed Bids that include a complete original bid document and one additional proposal section copy must be received** by the City of Ann Arbor Procurement Office, Fifth Floor, City Hall, Ann Arbor, Michigan, at the time stipulated in the Advertisement, which promptly thereafter proposals will be publicly opened and read aloud. Each proposal must be enclosed in a sealed envelope, endorsed across one end:

### **BID #4190 Proposal for West Park Pergola Restoration**

The City intends to award a Contract(s) to the lowest responsible Bidder(s). On multi-divisional contracts, separate divisions may be awarded to separate Bidders. The City may also utilize discounts offered in the Bid Forms, if any, to determine the lowest responsible Bidder on each division, and award multiple divisions to a single Bidder, so that the lowest total cost is achieved for the City. For unit price bids, the contract will be awarded based upon the lump sum and unit prices stated by the bidder for the work items specified in the bid documents, with consideration given to any alternates selected by the City. If the City determines that the unit price for any item is materially different for the work item bid than either other bidders or the general market, the City, in its sole discretion, in addition to any other right it may have, may reject the bid as not responsible or non-conforming.

The acceptability of major subcontractors will be considered in determining if a Bidder is responsible. In comparing proposals, the City will give consideration to alternate proposals for items listed in the forms, or other alternates which the Bidder may wish to submit, but preference will be given to Base Bid Proposals.

The City reserves the right to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

## Bid Security

Each proposal must be accompanied by a certified check, or Bid Bond by a surety licensed and authorized to do business within the State of Michigan, in the amount of 5% of the total of the bid price.

## Withdrawal of Bids

After the time of opening, no Bid may be withdrawn for the period of days specified in the Advertisement.

## Contract Time

Time is of the essence in the performance of the work under this Contract. The available time for work under this Contract is indicated on page C-1, Article III of the Contract. If these time requirements can not be met, the Bidder must stipulate on Bid Form Section 3 - Time Alternate its schedule for performance of the work. Consideration will be given to time in evaluating bids.

## Liquidated Damages

A liquidated damages clause, as given on page C-2, Article III of the Contract, provides that the Contractor shall pay the City as liquidated damages, and not as a penalty, a sum certain per day for each and every day that the Contractor may be in default of completion of the specified work, within the time(s) stated in the Contract, or written extensions.

Liquidated damages clauses, as given in the General Conditions, provide further that the City shall be entitled to impose and recover liquidated damages for breach of the obligations under Chapter 112 of the City Code.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

## Human Rights Information

Section 5, beginning at page GC-3, outlines the requirements for fair employment practices under City of Ann Arbor Contracts. To establish compliance with this Ordinance, the Bidder must complete and return with its bid completed copies of the two pages of Human Rights Division Contract Compliance Forms (copy attached) or an acceptable equivalent.

## Wage Requirements

Section 4, beginning at page GC-1, outlines the requirements for payment of prevailing wages or of a living wage to employees providing service to the City under this contract. The successful bidder must comply with all applicable requirements and may be required to provide documentary proof of compliance when requested.

### Major Subcontractors

The Bidder shall identify each major subcontractor it expects to engage for this Contract if the work to be subcontracted is 15% or more of the bid sum or over \$50,000, whichever is less. The Bidder also shall identify the work to be subcontracted to each major subcontractor.

## PROPOSAL

City of Ann Arbor  
Guy C. Larcom Municipal Building  
Ann Arbor, Michigan 48107

Ladies and Gentlemen:

The undersigned, as Bidder, declares that this Bid is made in good faith, without fraud or collusion with any person or persons bidding on the same Contract; that this Bidder has carefully read and examined the bid documents, including Advertisement, Human Rights Division Contract Compliance Forms, Notice of Pre-Bid Conference, Instructions to Bidders, Proposal, Bid Forms, Contract, Bond Forms, General Conditions, Standard Specifications, Detailed Specifications, all Addenda, and the Plans and understands them. The Bidder declares that it conducted a full investigation at the site and of the work proposed and is fully informed as to the nature of the work and the conditions relating to the work's performance. The Bidder also declares that it has extensive experience in successfully completing projects similar to this one.

The Bidder acknowledges that it has not received or relied upon any representations or warrants of any nature whatsoever from the City of Ann Arbor, its agents or employees, and that this Bid is based solely upon the Bidder's own independent business judgment.

The undersigned proposes to perform all work shown on the plans or described in the bid documents, including any addenda issued, and to furnish all necessary machinery, tools, apparatus, and other means of construction to do all the work, furnish all the materials, and complete the work in strict accordance with all terms of the Contract of which this proposal is one part.

In accordance with these bid documents, and Addenda numbered \_\_\_\_\_, the undersigned, as Bidder, proposes to perform at the sites in and/or around Ann Arbor, Michigan, all the work included herein for the amounts set forth in the Bid Forms.

The Bidder declares that it has become fully familiar with the liquidated damage clauses for completion times and for compliance with City Code Chapter 112, understands and agrees that the liquidated damages are for the non-quantifiable aspects of non-compliance and do not cover actual damages that may be shown and agrees that if awarded the Contract, all liquidated damage clauses form part of the Contract.

The Bidder declares that it has become fully familiar with the provisions of Chapter 14, Section 1:319 (Prevailing wages) and Chapter 23 (Living Wage) of the Code of the City of Ann Arbor and that it understands and agrees to comply, to the extent applicable to employees providing services to the City under this Contract, with the wage and reporting requirements stated in the City Code provisions cited. Bidder further agrees that the cited provisions of Chapter 14 and Chapter 23 form a part of this Contract.

The Bidder encloses a certified check or Bid Bond in the amount of 5% of the total of the Bid Price.

The Bidder agrees both to contract for the work and to furnish the necessary Bonds and insurance documentation within 10 days after being notified of the acceptance of the Bid.

If this Bid is accepted by the City and the Bidder fails to contract and furnish the required Bonds and insurance documentation within 10 days after being notified of the acceptance of this Bid, then the Bidder shall be considered to have abandoned the Contract and the certified check or Bid Bond accompanying this Proposal shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Proposal, or if this Proposal is rejected, then the accompanying check or Bid Bond shall be returned to the Bidder.

In submitting this Bid, it is understood that the right is reserved by the City to accept any Bid, to reject any or all Bids, to waive irregularities and/or informalities in any Bid, and to make the award in any manner the City believes to be in its best interest.

SIGNED THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2011.

\_\_\_\_\_  
Bidder's/Contractor Name

\_\_\_\_\_  
Official Address

\_\_\_\_\_  
Authorized Signature of Bidder

\_\_\_\_\_  
Telephone Number

\_\_\_\_\_  
(Print Name of Signer Above)

## LEGAL STATUS OF BIDDER

(The Bidder shall fill out the appropriate form and strike out the other two.)

Bidder declares that it is:

\* A corporation organized and doing business under the laws of the state of \_\_\_\_\_, for whom \_\_\_\_\_, bearing the office title of \_\_\_\_\_, whose signature is affixed to this proposal is authorized to execute contracts.

\* A partnership, list all members and the street and mailing address of each:

Also identify the County and State where partnership papers are filed:

County of \_\_\_\_\_, State of \_\_\_\_\_

\* An individual, whose signature with address, is affixed to this proposal: \_\_\_\_\_  
(initial here)

BID FORMS  
WEST PARK PERGOLA RESTORATION  
BID #4190

Section 1 - Schedule of Prices

**Base Bid**

For the entire work outlined in these documents, complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

\_\_\_\_\_ Dollars (\$\_\_\_\_\_)

**Bid Alternates**

Price to be added or subtracted from base bid.

1. Provide 24" x 24" x ½" porcelain tile on lower walking surface – Monolith Grey by Marazzi in lieu of concrete pavers. (\$\_\_\_\_\_)
2. Provide 12" x 24" x ½" porcelain tile on – Monolith Black by Marazzi on raised concrete column slab. (\$\_\_\_\_\_)
3. Remove existing beam framing and re-build with new pressure treated wood to match existing framing member sizes and composition. (\$\_\_\_\_\_)
4. Remove ex. 12" diameter concrete footing and replace with new 12" diameter x 5 foot diameter footing or depth required to provide 3 feet of ground cover at the bottom 12" of the footing – set top level with top of footing to the west. (\$\_\_\_\_\_)

Signature of Authorized Representative of Bidder

\_\_\_\_\_

## Section 2 - Material and Equipment Alternates

The Base Bid proposal price shall include materials and equipment selected from the designated items and manufacturers listed in the bidding documents. This is done to establish uniformity in bidding and to establish standards of quality for the items named.

If the Contractor wishes to quote alternate items for consideration by the City, it may do so under this Section. A complete description of the item and the proposed price differential must be provided. Unless approved at the time of award, substitutions where items are specifically named will be considered only as a negotiated change in Contract Sum.

<u>Item Number</u>	<u>Description</u>	<u>Add/Deduct Amount</u>
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If the Bidder does not suggest any material or equipment alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any material or equipment alternate under the contract.

Signature of Authorized Representative of Bidder

---



## BID FORM

### Section 3 - Time Alternate

If the Bidder takes exception to the time stipulated in Article III of the Contract, Time of Completion, page C-1, it is requested to stipulate below its proposed time for performance of the work. Consideration will be given to time in evaluating bids.

If the Bidder does not suggest any time alternate, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT propose any time alternate under the contract.

Signature of Authorized Representative of Bidder

---

## BID FORM

### Section 4 - Major Subcontractors

For purposes of this contract, a Subcontractor is anyone (other than the Contractor) who performs work (other than or in addition to the furnishing of materials, plans or equipment) at or about the construction site, directly or indirectly for or on behalf of the Contractor (and whether or not in privity of contract with the Contractor), but shall not include any individual who furnishes merely the individual's own personal labor or services.

For the work outlined in these documents the Bidder expects to engage the following major subcontractors to perform the work identified:

<u>Subcontractor (Name and Address)</u>	<u>Work</u>	<u>Amount</u>
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If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

For the work outlined in this request for bid, the bidder does NOT expect to engage any major subcontractor to perform work under the contract.

Signature of Authorized Representative of Bidder

---

## CONTRACT

THIS AGREEMENT is made on the \_\_\_\_ day of \_\_\_\_\_, 201\_\_, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 E. Huron St., Ann Arbor, Michigan 48107-8647 (“City”) and \_\_\_\_\_.

Based upon the mutual promises below, the Contractor and the City agree as follows:

### ARTICLE I - Scope of Work

The Contractor agrees to furnish all of the materials, equipment and labor necessary; and to abide by all the duties and responsibilities applicable to it for the project titled “WEST PARK PERGOLA RESTORATION” in accordance with the requirements and provisions of the following documents, including all written modifications incorporated into any of the documents, which are incorporated as part of this Contract:

Human Rights Division Contract	General Conditions
Compliance Forms	Standard Specifications
Living Wage Declaration of	Detailed Specifications
Compliance Forms	Plans
(if applicable)	Addenda
Bid Forms	
Proposal	
Contract and Exhibits	
Bonds	

### ARTICLE II - Definitions

Administering Service area means Parks and Recreation Services

Supervising Professional means Sumedh Bahl or other persons acting under the authorization of the Director of the Administering Department.

Project means **West Park Pergola Restoration - Bid No. 4190**

### ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately after the Contractor’s receipt of a fully executed Contract.
- (B) The entire work for this Contract shall be completed within 45 consecutive calendar days.
- (C) Failure to complete all the work within the time specified above, including any extension granted in writing by the Supervising Professional, shall obligate the Contractor to pay the City, as liquidated damages and not as a penalty, an amount

equal to \$100.00 for each calendar day of delay in the completion of all the work. If any liquidated damages are unpaid by the Contractor, the City shall be entitled to deduct these unpaid liquidated damages from the monies due the Contractor.

As an independent requirement, where the Detailed Specifications identify certain portions of the work to be completed within a shorter period of time and the Contractor fails to complete each portion within the shorter period specified for each portion, including any extension granted in writing by the Project Supervisor, the City is entitled to deduct from the monies due the Contractor, as liquidated damages and not as a penalty, the amount identified in the Detailed Specifications for each portion of the work not timely completed for each calendar day of delay in completion of each portion of the work.

The liquidated damages are for the non-quantifiable aspects of any of the previously identified events and do not cover actual damages that can be shown or quantified nor are they intended to preclude recovery of actual damages in addition to the recovery of liquidated damages.

Liquidated damages under this section are in addition to any liquidated damages due under Section 5 of the General Conditions.

#### ARTICLE IV - The Contract Sum

- (A) The City shall pay to the Contractor for the performance of the Contract, the unit prices as given in the Bid Forms for the estimated total of:

---

Use words

(\$ \_\_\_\_\_ )

Use numbers

- (B) The amount paid shall be equitably adjusted to cover changes in the work ordered by the Supervising Professional but not required by the contract documents.

#### ARTICLE V - Assignment

This Contract may not be assigned or subcontracted without the written consent of the City.

#### ARTICLE VI - Choice of Law

This Contract shall be construed, governed, and enforced in accordance with the laws of the State of Michigan. By executing this agreement, the Contractor and the City agree to venue in a court of appropriate jurisdiction sitting within Washtenaw County for purposes of any action arising under this Contract.

Whenever possible, each provision of the contract will be interpreted in a manner as to be effective and valid under applicable law. The prohibition or invalidity, under applicable law, of any provision will not invalidate the remainder of the contract.

## ARTICLE VII - Relationship of the Parties

The parties of the Contract agree that it is not a contract of employment but is a contract to accomplish a specific result. Contractor is an independent contractor performing services for the City. Nothing contained in this Contract shall be deemed to constitute any other relationship between the City and the Contractor.

Contractor certifies that it has no personal or financial interest in the project other than the compensation it is to receive under the Contract. Contractor certifies that it is not, and shall not become, overdue or in default to the City for any contract, debt, or any other obligation to the City including real or personal property taxes. City shall have the right to set off any such debt against compensation awarded for services under this agreement.

## ARTICLE VIII - Notice

All notices given under this contract shall be in writing, and shall be by personal delivery or by certified mail with return receipt requested to the parties at their respective addresses as specified in the contract documents or other address the Contractor may specify in writing..

## ARTICLE IX - Indemnification

To the fullest extent permitted by law, for any loss not covered by insurance under this contract, Contractor shall indemnify, defend and hold harmless the City, its officers, employees and agents harmless from all suits, claims, judgments and expenses including attorney's fees resulting or alleged to result, in whole or in part, from any act or omission, which is in any way connected or associated with this contract, by the Contractor or anyone acting on the Contractor's behalf under this contract. Contractor shall not be responsible to indemnify the City for losses or damages caused by or resulting from the City's sole negligence.

## ARTICLE X - Entire Agreement

This Contract represents the entire understanding between the City and the Contractor and it supersedes all prior representations or agreements whether written or oral. Neither party has relied on any prior representations in entering into this Contract. This Contract may be altered, amended or modified only by written amendment signed by the City and the Contractor.

**FOR CONTRACTOR**

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

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

**FOR THE CITY OF ANN ARBOR**

By \_\_\_\_\_  
John Hieftje, Mayor

By \_\_\_\_\_  
Jacqueline Beaudry, City Clerk

**Approved as to substance**

By \_\_\_\_\_  
Steven D. Powers, City Administrator

By \_\_\_\_\_  
Sumedh Bahl, Community Services  
Area Administrator

**Approved as to form and content**

\_\_\_\_\_  
Stephen K. Postema, City Attorney

PERFORMANCE BOND

- (1) \_\_\_\_\_ of \_\_\_\_\_ (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for \$\_\_\_\_\_, the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written contract with the City dated \_\_\_\_\_, for: \_\_\_\_\_ and this bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq.
- (3) Whenever the Principal is declared by the City to be in default under the contract, the Surety may promptly remedy the default or shall promptly:
- (a) complete the contract in accordance with its terms and conditions; or
  - (b) obtain a bid or bids for submission to the City for completing the contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible bidder, arrange for a contract between such bidder and the City, and make available, as work progresses, sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which Surety may be liable hereunder, the amount set forth in paragraph 1.
- (4) Surety shall have no obligation to the City if the Principal fully and promptly performs under the contract.
- (5) Surety agrees that no change, extension of time, alteration or addition to the terms of the contract or to the work to be performed thereunder, or the specifications accompanying it shall in any way affect its obligations on this bond, and waives notice of any such change, extension of time, alteration or addition to the terms of the contract or to the work, or to the specifications.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 2011.

(Name of Surety Company)

(Name of Principal)

By

By

(Signature)

(Signature)

Its

Its

(Title of Office)

(Title of Office)

Name and address of agent:

Approved as to form:

Stephen K. Postema, City Attorney

LABOR AND MATERIAL BOND

- (1) \_\_\_\_\_ of \_\_\_\_\_, (referred to as "Principal"), and \_\_\_\_\_, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$\_\_\_\_\_, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.
- (2) The Principal has entered a written contract with the City, dated \_\_\_\_\_, for: \_\_\_\_\_; and this bond is given for that contract in compliance with Act No. 213 of the Michigan Public Acts of 1963 as amended;
- (3) If the Principal fails to promptly and fully repay claimants for labor and material reasonably required under the contract, the Surety shall pay those claimants.
- (4) Surety's obligations shall not exceed the amount stated in paragraph 1, and Surety shall have no obligation if the Principal promptly and fully pays the claimants.

**SIGNED AND SEALED** this \_\_\_\_\_ day of \_\_\_\_\_, 2011.

(Name of Surety Company)	(Name of Principal)
By	By
(Signature)	(Signature)
Its	Its
(Title of Office)	(Title of Office)

Approved as to form:

Name and address of agent:

Stephen K. Postema, City Attorney



## **GENERAL CONDITIONS**

### **Section 1 - Execution, Correlation and Intent of Documents**

The contract documents shall be signed in 3 copies by the City and the Contractor.

The contract documents are complementary and what is called for by any one shall be binding. The intention of the documents is to include all labor and materials, equipment and transportation necessary for the proper execution of the work. Materials or work described in words which so applied have a well-known technical or trade meaning have the meaning of those recognized standards.

In case of a conflict among the contract documents listed below in any requirement(s), the requirement(s) of the document listed first shall prevail over any conflicting requirement(s) of a document listed later.

(1) Addenda in reverse chronological order; (2) Detailed Specifications; (3) Standard Specifications; (4) Drawings/Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Proposal.

### **Section 2 - Order of Completion**

The Contractor shall submit with each invoice, and at other times reasonably requested by the Supervising Professional, schedules showing the order in which the Contractor proposes to carry on the work. They shall include the dates at which the Contractor will start the several parts of the work, the estimated dates of completion of the several parts, and important milestones within the several parts.

### **Section 3 - Familiarity with Work**

The Bidder or its representative shall make personal investigations of the site of the work and of existing structures and shall determine to its own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved, and all other factors affecting the work proposed under this Contract. The Bidder to whom this Contract is awarded will not be entitled to any additional compensation unless conditions are clearly different from those which could reasonably have been anticipated by a person making diligent and thorough investigation of the site.

The Bidder shall immediately notify the City upon discovery, and in every case prior to submitting its Bid, of every error or omission in the bidding documents that would be identified by a reasonably competent, diligent Bidder. In no case will a Bidder be allowed the benefit of extra compensation or time to complete the work under this Contract for extra expenses or time spent as a result of the error or omission.

## Section 4 - Wage Requirements

Under this Contract, the Contractor shall conform to Chapter 14 of Title I of the Code of the City of Ann Arbor as amended; which in part states "...that all craftsmen, mechanics and laborers employed directly on the site in connection with said improvements, including said employees of subcontractors, shall receive the prevailing wage for the corresponding classes of craftsmen, mechanics and laborers, as determined by statistics for the Ann Arbor area compiled by the United States Department of Labor. At the request of the City, any contractor or subcontractor shall provide satisfactory proof of compliance with the contract provisions required by the Section."

Where the Contract and the Ann Arbor City Ordinance are silent as to definitions of terms required in determining contract compliance with regard to prevailing wages, the definitions provided in the Davis-Bacon Act as amended (40 U.S.C. 278-a to 276-a-7) for the terms shall be used.

### **1:814. Applicability.**

- (1) This Chapter shall apply to any person that is a contractor/vendor or grantee as defined in Section 1:813 that employs or contracts with five (5) or more individuals; provided, however, that this Chapter shall not apply to a non-profit contractor/vendor or non-profit grantee unless it employs or contracts with ten (10) or more individuals.
- (2) This Chapter shall apply to any grant, contract, or subcontract or other form of financial assistance awarded to or entered into with a contractor/vendor or grantee after the effective date of this Chapter and to the extension or renewal after the effective date of this Chapter of any grant, contract, or subcontract or other form of financial assistance with a contractor/vendor or grantee.

### **1:815. Living Wages Required.**

- (1) Every contractor/vendor or grantee, as defined in Section 1:813, shall pay its covered employees a living wage as established in this Section.
  - (a) For a covered employer that provides employee health care to its employees, the living wage shall be \$11.71 an hour, or the adjusted amount hereafter established under Section 1:815(3).
  - (b) For a covered employer that does not provide health care to its employees, the living wage shall be \$13.06 an hour, or the adjusted amount hereafter established under Section 1:815(3).
- (2) In order to qualify to pay the living wage rate for covered employers providing employee health care under subsection 1:815(1)(a), a covered employer shall furnish proof of said health care coverage and payment therefor to the City Administrator or his/her designee.
- (3) The amount of the living wage established in this Section shall be adjusted upward no later than April 30, 2011, and every year thereafter by a percentage equal to the percentage increase, if any, in the federal poverty guidelines as published by the United States Department of Health and Human Services for the year 2011. Subsequent annual adjustments shall be based upon the percentage increase, if any, in the United States Department of Health and Human Services poverty guidelines when comparing the prior

calendar year's poverty guidelines to the present calendar year's guidelines. The applicable percentage amount will be converted to an amount in cents by multiplying the existing wage under Section 1.815(1)(b) by said percentage, rounding upward to the next cent, and adding this amount of cents to the existing living wage levels established under Sections 1:815(1)(a) and 1:815(1)(b). Prior to April 1 of each calendar year, the City will notify any covered employer of this adjustment by posting a written notice in a prominent place in City Hall, and, in the case of a covered employer that has provided an address of record to the City, by a written letter to each such covered employer.

#### Section 5 - Non-Discrimination

The Contractor agrees to comply with the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to take affirmative action to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate any inequality based upon race, national origin or sex. The Contractor agrees to comply with the provisions of Section 9:161 of Chapter 112 of the Ann Arbor City Code and in particular the following excerpts:

#### 9:161 NONDISCRIMINATION BY CITY CONTRACTORS

- (1) All contractors proposing to do business with the City of Ann Arbor shall satisfy the nondiscrimination administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All contractors shall receive approval from the Director prior to entering into a contract with the City, unless specifically exempted by administrative policy. All City contractors shall take affirmative action to insure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.
- (2) Each prospective contractor shall submit to the City data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Director concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, said contractor shall be accepted by the Director as having fulfilled affirmative action requirements for a period of one year at which time the Director shall conduct another review. Other contractors shall develop an affirmative action program in conjunction with the Director. Said program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said goals shall reflect the availability of minorities and females within the contractor's labor recruitment area. In the case of construction contractors, the Director shall use for employment verification the labor recruitment area of the Ann Arbor-Ypsilanti standard metropolitan statistical area. Construction contractors determined to be in compliance shall be accepted by the Director as having fulfilled affirmative action requirements for a period of six (6) months at which time the Director shall conduct another review.
- (3) In hiring for construction projects, contractors shall make good faith efforts to employ local persons, so as to enhance the local economy.
- (4) All contracts shall include provisions through which the contractor agrees, in addition to any other applicable Federal or State labor laws:

- (a) To set goals, in conference with the Human Resources Director, for each job category or division of the work force used in the completion of the City work;
  - (b) To provide periodic reports concerning the progress the contractor has made in meeting the affirmative action goals it has agreed to;
  - (c) To permit the Director access to all books, records and accounts pertaining to its employment practices for the purpose of determining compliance with the affirmative action requirements.
- (5) The Director shall monitor the compliance of each contractor with the nondiscrimination provisions of each contract. The Director shall develop procedures and regulations consistent with the administrative policy adopted by the City Administrator for notice and enforcement of non-compliance. Such procedures and regulations shall include a provision for the posting of contractors not in compliance.
- (6) All City contracts shall provide further that breach of the obligation not to discriminate shall be a material breach of the contract for which the City shall be entitled, at its option, to do any or all of the following:
- (a) To cancel, terminate, or suspend the contract in whole or part and/or refuse to make any required periodic payments under the contract;
  - (b) Declare the contractor ineligible for the award of any future contracts with the City for a specified length of time;
  - (c) To recover liquidated damages of a specified sum, said sum to be that percentage of the labor expenditure for the time period involved which would have accrued to minority group members had the affirmative action not been breached;
  - (d) Impose for each day of non-compliance, liquidated damages of a specified sum, based upon the following schedule:

<u>Contract Amount</u>	<u>Assessed Damages Per Day of Non-Compliance</u>
\$ 10,000 - 24,999	\$ 25.00
25,000 - 99,999	50.00
100,000 - 199,999	100.00
200,000 - 499,999	150.00
500,000 - 1,499,999	200.00
1,500,000 - 2,999,999	250.00
3,000,000 - 4,999,999	300.00
5,000,000 - and above	500.00

- (e) In addition the contractor shall be liable for any costs or expenses incurred by the City of Ann Arbor in obtaining from other sources the work and services to be rendered or

performed or the goods or properties to be furnished or delivered to the City under this contract.

#### Section 6 - Materials, Appliances, Employees

Unless otherwise stipulated, the Contractor shall provide and pay for all materials, labor, water, tools, equipment, light, power, transportation, and other facilities necessary or used for the execution and completion of the work. Unless otherwise specified, all materials incorporated in the permanent work shall be new, and both workmanship and materials shall be of the highest quality. The Contractor shall, if required, furnish satisfactory evidence as to the kind and quality of materials.

The Contractor shall at all times enforce strict discipline and good order among its employees, and shall seek to avoid employing on the work any unfit person or anyone not skilled in the work assigned.

Adequate sanitary facilities shall be provided by the Contractor.

#### Section 7 - Qualifications for Employment

The Contractor shall employ competent laborers and mechanics for the work under this Contract. For work performed under this Contract, employment preference shall be given to qualified local residents.

#### Section 8 - Royalties and Patents

The Contractor shall pay all royalties and license fees. It shall defend all suits or claims for infringements of any patent rights and shall hold the City harmless from loss on account of infringement except that the City shall be responsible for all infringement loss when a particular process or the product of a particular manufacturer or manufacturers is specified, unless the City has notified the Contractor prior to the signing of the Contract that the particular process or product is patented or is believed to be patented.

#### Section 9 - Permits and Regulations

The Contractor must secure and pay for all permits, permit or plan review fees and licenses necessary for the prosecution of the work. These include but are not limited to City building permits, right-of-way permits, lane closure permits, right-of-way occupancy permits, and the like. The City shall secure and pay for easements shown on the plans unless otherwise specified.

The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations bearing on the conduct of the work as drawn and specified. If the Contractor observes that the contract documents are at variance with those requirements, it shall promptly notify the Supervising Professional in writing, and any necessary changes shall be adjusted as provided in the Contract for changes in the work.

## Section 10 - Protection of the Public and of Work and Property

The Contractor is responsible for the means, methods, sequences, techniques and procedures of construction and safety programs associated with the work contemplated by this contract. The Contractor, its agents or sub-contractors, shall comply with the "General Rules and Regulations for the Construction Industry" as published by the Construction Safety Commission of the State of Michigan and to all other local, State and National laws, ordinances, rules and regulations pertaining to safety of persons and property.

The Contractor shall take all necessary and reasonable precautions to protect the safety of the public. It shall continuously maintain adequate protection of all work from damage, and shall take all necessary and reasonable precautions to adequately protect all public and private property from injury or loss arising in connection with this Contract. It shall make good any damage, injury or loss to its work and to public and private property resulting from lack of reasonable protective precautions, except as may be due to errors in the contract documents, or caused by agents or employees of the City. The Contractor shall obtain and maintain sufficient insurance to cover damage to any City property at the site by any cause.

In an emergency affecting the safety of life, or the work, or of adjoining property, the Contractor is, without special instructions or authorization from the Supervising Professional, permitted to act at its discretion to prevent the threatened loss or injury. It shall also so act, without appeal, if authorized or instructed by the Supervising Professional.

Any compensation claimed by the Contractor for emergency work shall be determined by agreement or in accordance with the terms of Claims for Extra Cost - Section 15.

## Section 11 - Inspection of Work

The City shall provide sufficient competent personnel for the inspection of the work.

The Supervising Professional shall at all times have access to the work whenever it is in preparation or progress, and the Contractor shall provide proper facilities for access and for inspection.

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

Re-examination of any work may be ordered by the Supervising Professional, and, if so ordered, the work must be uncovered by the Contractor. If the work is found to be in accordance with the contract documents, the City shall pay the cost of re-examination and replacement. If the work is not in accordance with the contract documents, the Contractor shall pay the cost.

## Section 12 - Superintendence

The Contractor shall keep on the work site, during its progress, a competent superintendent and any necessary assistants, all satisfactory to the Supervising Professional. The superintendent will be responsible to perform all on-site project management for the Contractor. The superintendent shall be experienced in the work required for this Contract. The superintendent shall represent the Contractor and all direction given to the superintendent shall be binding as if given to the Contractor. Important directions shall immediately be confirmed in writing to the Contractor. Other directions will be confirmed on written request. The Contractor shall give efficient superintendence to the work, using its best skill and attention.

## Section 13 - Changes in the Work

The City may make changes to the quantities of work within the general scope of the Contract at any time by a written order and without notice to the sureties. If the changes add to or deduct from the extent of the work, the Contract Sum shall be adjusted accordingly. All the changes shall be executed under the conditions of the original Contract except that any claim for extension of time caused by the change shall be adjusted at the time of ordering the change.

In giving instructions, the Supervising Professional shall have authority to make minor changes in the work not involving extra cost and not inconsistent with the purposes of the work, but otherwise, except in an emergency endangering life or property, no extra work or change shall be made unless in pursuance of a written order by the Supervising Professional, and no claim for an addition to the Contract Sum shall be valid unless the additional work was ordered in writing.

The Contractor shall proceed with the work as changed and the value of the work shall be determined as provided in Claims for Extra Cost - Section 15.

## Section 14 - Extension of Time

Extension of time stipulated in the Contract for completion of the work will be made if and as the Supervising Professional may deem proper under any of the following circumstances:

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;
- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

The Contractor shall notify the Supervising Professional within 7 days of an occurrence or conditions which, in the Contractor's opinion, entitle it to an extension of time. The notice shall be in writing and submitted in ample time to permit full investigation and evaluation of the Contractor's claim. The Supervising Professional shall acknowledge receipt of the Contractor's notice within 7 days of its receipt. Failure to timely provide the written notice shall constitute a waiver by the Contractor of any claim.

In situations where an extension of time in contract completion is appropriate under this or any other section of the contract, the Contractor understands and agrees that the only available adjustment for events that cause any delays in contract completion shall be extension of the required time for contract completion and that there shall be no adjustments in the money due the Contractor on account of the delay.

### Section 15 - Claims for Extra Cost

If the Contractor claims that any instructions by drawings or other media issued after the date of the Contract involved extra cost under this Contract, it shall give the Supervising Professional written notice within 7 days after the receipt of the instructions, and in any event before proceeding to execute the work, except in emergency endangering life or property. The procedure shall then be as provided for Changes in the Work-Section 13. No claim shall be valid unless so made.

If the Supervising Professional orders, in writing, the performance of any work not covered by the contract documents, and for which no item of work is provided in the Contract, and for which no unit price or lump sum basis can be agreed upon, then the extra work shall be done on a Cost-Plus-Percentage basis of payment as follows:

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of 5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;
- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.



No additional compensation will be provided for additional equipment, materials, personnel, overtime or special charges required to perform the work within the time requirements of the Contract.

When extra work is required and no suitable price for machinery and equipment can be determined in accordance with this Section, the hourly rate paid shall be 1/40 of the basic weekly rate listed in the Rental Rate Blue Book published by Dataquest Incorporated and applicable to the time period the equipment was first used for the extra work. The hourly rate will be deemed to include all costs of operation such as bucket or blade, fuel, maintenance, "regional factors", insurance, taxes, and the like, but not the costs of the operator.

#### Section 16 - Progress Payments

The Contractor shall submit each month, or at longer intervals, if it so desires, an invoice covering work performed for which it believes payment, under the Contract terms, is due. The submission shall be to the City's Finance Department - Accounting Division. The Supervising Professional will, within 10 days following submission of the invoice, prepare a certificate for payment for the work in an amount to be determined by the Supervising Professional as fairly representing the acceptable work performed during the period covered by the Contractor's invoice. To insure the proper performance of this Contract, the City will retain a percentage of the estimate in accordance with Act 524, Public Acts of 1980. The City will then, following the receipt of the Supervising Professional's Certificate, make payment to the Contractor as soon as feasible, which is anticipated will be within 15 days.

An allowance may be made in progress payments if substantial quantities of permanent material have been delivered to the site but not incorporated in the completed work if the Contractor, in the opinion of the Supervising Professional, is diligently pursuing the work under this Contract. Such materials shall be properly stored and adequately protected. Allowance in the estimate shall be at the invoice price value of the items. Notwithstanding any payment of any allowance, all risk of loss due to vandalism or any damages to the stored materials remains with the Contractor.

In the case of Contracts which include only the Furnishing and Delivering of Equipment, the payments shall be; 60% of the Contract Sum upon the delivery of all equipment to be furnished, or in the case of delivery of a usable portion of the equipment in advance of the total equipment delivery, 60% of the estimated value of the portion of the equipment may be paid upon its delivery in advance of the time of the remainder of the equipment to be furnished; 30% of the Contract Sum upon completion of erection of all equipment furnished, but not later than 60 days after the date of delivery of all of the equipment to be furnished; and payment of the final 10% on final completion of erection, testing and acceptance of all the equipment to be furnished; but not later than 180 days after the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

With each invoice for periodic payment, the Contractor shall enclose a Contractor's Declaration - Section 43, and an updated project schedule per Order of Completion - Section 2.

#### Section 17 - Deductions for Uncorrected Work

If the Supervising Professional decides it is inexpedient to correct work that has been damaged or that was not done in accordance with the Contract, an equitable deduction from the Contract price

shall be made.

### Section 18 - Correction of Work Before Final Payment

The Contractor shall promptly remove from the premises all materials condemned by the Supervising Professional as failing to meet Contract requirements, whether incorporated in the work or not, and the Contractor shall promptly replace and re-execute the work in accordance with the Contract and without expense to the City and shall bear the expense of making good all work of other contractors destroyed or damaged by the removal or replacement.

If the Contractor does not remove the condemned work and materials within 10 days after written notice, the City may remove them and, if the removed material has value, may store the material at the expense of the Contractor. If the Contractor does not pay the expense of the removal within 10 days thereafter, the City may, upon 10 days written notice, sell the removed materials at auction or private sale and shall pay to the Contractor the net proceeds, after deducting all costs and expenses that should have been borne by the Contractor. If the removed material has no value, the Contractor must pay the City the expenses for disposal within 10 days of invoice for the disposal costs.

The inspection or lack of inspection of any material or work pertaining to this Contract shall not relieve the Contractor of its obligation to fulfill this Contract and defective work shall be made good. Unsuitable materials may be rejected by the Supervising Professional notwithstanding that the work and materials have been previously overlooked by the Supervising Professional and accepted or estimated for payment or paid for. If the work or any part shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good the defect in a manner satisfactory to the Supervising Professional. The judgment and the decision of the Supervising Professional as to whether the materials supplied and the work done under this Contract comply with the requirements of the Contract shall be conclusive and final.

### Section 19 - Acceptance and Final Payment

Upon receipt of written notice that the work is ready for final inspection and acceptance, the Supervising Professional will promptly make the inspection. When the Supervising Professional finds the work acceptable under the Contract and the Contract fully performed, the Supervising Professional will promptly sign and issue a final certificate stating that the work required by this Contract has been completed and is accepted by the City under the terms and conditions of the Contract. The entire balance found to be due the Contractor, including the retained percentage, shall be paid to the Contractor by the City within 30 days after the date of the final certificate.

Before issuance of final certificates, the Contractor shall file with the City:

- (1) The consent of the surety to payment of the final estimate;
- (2) The Contractor's Affidavit in the form required by Section 44.

In case the Affidavit or consent is not furnished, the City may retain out of any amount due the Contractor, sums sufficient to cover all lienable claims.

The making and acceptance of the final payment shall constitute a waiver of all claims by the City except those arising from:

- (1) unsettled liens;

- (2) faulty work appearing within 12 months after final payment;
- (3) hidden defects in meeting the requirements of the plans and specifications;
- (4) manufacturer's guarantees.

It shall also constitute a waiver of all claims by the Contractor, except those previously made and still unsettled.

#### Section 20 - Suspension of Work

The City may at any time suspend the work, or any part by giving 5 days notice to the Contractor in writing. The work shall be resumed by the Contractor within 10 days after the date fixed in the written notice from the City to the Contractor to do so. The City shall reimburse the Contractor for expense incurred by the Contractor in connection with the work under this Contract as a result of the suspension.

If the work, or any part, shall be stopped by the notice in writing, and if the City does not give notice in writing to the Contractor to resume work at a date within 90 days of the date fixed in the written notice to suspend, then the Contractor may abandon that portion of the work suspended and will be entitled to the estimates and payments for all work done on the portions abandoned, if any, plus 10% of the value of the work abandoned, to compensate for loss of overhead, plant expense, and anticipated profit.

#### Section 21 - Delays and The City's Right to Terminate Contract

If the Contractor refuses or fails to prosecute the work, or any separate part of it, with the diligence required to insure completion, ready for operation, within the allowable number of consecutive calendar days specified plus extensions, or fails to complete the work within the required time, the City may, by written notice to the Contractor, terminate its right to proceed with the work or any part of the work as to which there has been delay. After providing the notice the City may take over the work and prosecute it to completion, by contract or otherwise, and the Contractor and its sureties shall be liable to the City for any excess cost to the City. If the Contractor's right to proceed is terminated, the City may take possession of and utilize in completing the work, any materials, appliances and plant as may be on the site of the work and useful for completing the work. The right of the Contractor to proceed shall not be terminated or the Contractor charged with liquidated damages where an extension of time is granted under Extension of Time - Section 14.

If the Contractor is adjudged a bankrupt, or if it makes a general assignment for the benefit of creditors, or if a receiver is appointed on account of its insolvency, or if it persistently or repeatedly refuses or fails except in cases for which extension of time is provided, to supply enough properly skilled workers or proper materials, or if it fails to make prompt payments to subcontractors or for material or labor, or persistently disregards laws, ordinances or the instructions of the Supervising Professional, or otherwise is guilty of a substantial violation of any provision of the Contract, then the City, upon the certificate of the Supervising Professional that sufficient cause exists to justify such action, may, without prejudice to any other right or remedy and after giving the Contractor 3 days written notice, terminate this Contract. The City may then take possession of the premises and of all materials, tools and appliances thereon and without prejudice to any other remedy it may have, make good the deficiencies or finish the work by whatever method it may deem expedient, and deduct the cost from the payment due the Contractor. The Contractor shall not be entitled to receive any further payment until the work is finished. If the expense of finishing the work, including compensation for additional managerial and administrative services exceeds the unpaid balance of the Contract Sum, the Contractor and its surety are liable to the City for any excess cost incurred.

The expense incurred by the City, and the damage incurred through the Contractor's default, shall be certified by the Supervising Professional.

#### Section 22 - Contractor's Right to Terminate Contract

If the work should be stopped under an order of any court, or other public authority, for a period of 3 months, through no act or fault of the Contractor or of anyone employed by it, then the Contractor may, upon 7 days written notice to the City, terminate this Contract and recover from the City payment for all acceptable work executed plus reasonable profit.

#### Section 23 - City's Right To Do Work

If the Contractor should neglect to prosecute the work properly or fail to perform any provision of this Contract, the City, 3 days after giving written notice to the Contractor and its surety may, without prejudice to any other remedy the City may have, make good the deficiencies and may deduct the cost from the payment due to the Contractor.

#### Section 24 - Removal of Equipment and Supplies

In case of termination of this Contract before completion, from any or no cause, the Contractor, if notified to do so by the City, shall promptly remove any part or all of its equipment and supplies from the property of the City, failing which the City shall have the right to remove the equipment and supplies at the expense of the Contractor.

The removed equipment and supplies may be stored by the City and, if all costs of removal and storage are not paid by the Contractor within 10 days of invoicing, the City upon 10 days written notice may sell the equipment and supplies at auction or private sale, and shall pay the Contractor the net proceeds after deducting all costs and expenses that should have been borne by the Contractor and after deducting all amounts claimed due by any lien holder of the equipment or supplies.

#### Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

The Contractor shall guarantee the quality of the work for a period of one year. The Contractor shall also unconditionally guarantee the quality of all equipment and materials that are furnished and installed under the contract for a period of one year. At the end of one year after the Contractor's receipt of final payment, the complete work, including equipment and materials furnished and installed under the contract, shall be inspected by the Contractor and the Supervising Professional. Any defects shall be corrected by the Contractor at its expense as soon as practicable but in all cases within 60 days. Any defects that are identified prior to the end of one year shall also be inspected by the Contractor and the Supervising Professional and shall be corrected by the Contractor at its

expense as soon as practicable but in all cases within 60 days.

The Contractor shall assign all manufacturer or material supplier warranties to the City prior to final payment. The assignment shall not relieve the Contractor of its obligations under this paragraph to correct defects.

#### Section 26 - Partial Completion and Acceptance

If at any time prior to the issuance of the final certificate referred to in Acceptance and Final Payment - Section 19, any portion of the permanent construction has been satisfactorily completed, and if the Supervising Professional determines that portion of the permanent construction is not required for the operations of the Contractor but is needed by the City, the Supervising Professional shall issue to the Contractor a certificate of partial completion, and immediately the City may take over and use the portion of the permanent construction described in the certificate, and exclude the Contractor from that portion.

The issuance of a certificate of partial completion shall not constitute an extension of the Contractor's time to complete the portion of the permanent construction to which it relates if the Contractor has failed to complete it in accordance with the terms of this Contract. The issuance of the certificate shall not release the Contractor or its sureties from any obligations under this Contract including bonds.

If prior use increases the cost of, or delays the work, the Contractor shall be entitled to extra compensation, or extension of time, or both, as the Supervising Professional may determine.

#### Section 27 - Payments Withheld Prior to Final Acceptance of Work

The City may withhold or, on account of subsequently discovered evidence, nullify the whole or part of any certificate to the extent reasonably appropriate to protect the City from loss on account of:

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;
- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

When the above grounds are removed or the Contractor provides a Surety Bond satisfactory to the City which will protect the City in the amount withheld, payment shall be made for amounts withheld under this section.

#### Section 28 - Contractor's Insurance

- A. The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself from all claims for bodily injuries, death or property

damage which may arise under this Contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:

1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident

Bodily Injury by Disease - \$500,000 each employee

Bodily Injury by Disease - \$500,000 each policy limit

2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further, the following minimum limits of liability are required:

\$1,000,000 Each occurrence as respect Bodily Injury Liability or Property Damage Liability, or both combined.

\$2,000,000 Per Job General Aggregate

\$1,000,000 Personal and Advertising Injury

\$2,000,000 Products and Completed Operations Aggregate

3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

4. Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

B. Insurance required under Section A.2 and A.3 of this Contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.

C. In the case of all Contracts involving on-site work, the Contractor shall provide to the City before the commencement of any work under this Contract documentation demonstrating it has obtained the above mentioned policies. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name

of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering Department at least ten days prior to the expiration date.

- D. Any Insurance provider of Contractor shall be admitted and authorized to do business in the State of Michigan and shall carry and maintain a minimum rating assigned by A.M. Best & Company 's Key Rating Guide of 'A' Overall and a minimum Financial Size Category of 'V'. Insurance policies and certificates issued by non-admitted insurance companies are not acceptable unless approved in writing by the City.

#### Section 29 - Surety Bonds

Bonds will be required from the successful bidder as follows:

- (1) A Performance Bond to the City of Ann Arbor for the amount of the bid(s) accepted;
- (2) A Labor and Material Bond to the City of Ann Arbor for the amount of the bid(s) accepted.

Bonds shall be executed on forms supplied by the City in a manner and by a Surety Company satisfactory to the City Attorney.

#### Section 30 - Damage Claims

The Contractor shall be held responsible for all damages to property of the City or others, caused by or resulting from the negligence of the Contractor, its employees, or agents during the progress of or connected with the prosecution of the work, whether within the limits of the work or elsewhere. The Contractor must restore all property injured including sidewalks, curbing, sodding, pipes, conduit, sewers or other public or private property to not less than its original condition with new work.

#### Section 31 - Refusal to Obey Instructions

If the Contractor refuses to obey the instructions of the Supervising Professional, the Supervising Professional shall withdraw inspection from the work, and no payments will be made for work performed thereafter nor may work be performed thereafter until the Supervising Professional shall have again authorized the work to proceed.

#### Section 32 - Assignment

Neither party to the Contract shall assign the Contract without the written consent of the other. The Contractor may assign any monies due to it to a third party acceptable to the City.

### Section 33 - Rights of Various Interests

Whenever work being done by the City's forces or by other contractors is contiguous to work covered by this Contract, the respective rights of the various interests involved shall be established by the Supervising Professional, to secure the completion of the various portions of the work in general harmony.

The Contractor is responsible to coordinate all aspects of the work, including coordination of, and with, utility companies and other contractors whose work impacts this project.

### Section 34 - Subcontracts

The Contractor shall not award any work to any subcontractor without prior written approval of the City. The approval will not be given until the Contractor submits to the City a written statement concerning the proposed award to the subcontractor. The statement shall contain all information the City may require.

The Contractor shall be as fully responsible to the City for the acts and omissions of its subcontractors, and of persons either directly or indirectly employed by them, as it is for the acts and omissions of persons directly employed by it.

The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the work to bind subcontractors to the Contractor by the terms of the General Conditions and all other contract documents applicable to the work of the subcontractors and to give the Contractor the same power to terminate any subcontract that the City may exercise over the Contractor under any provision of the contract documents.

Nothing contained in the contract documents shall create any contractual relation between any subcontractor and the City.

### Section 35 - Supervising Professional's Status

The Supervising Professional has the right to inspect any or all work. The Supervising Professional has authority to stop the work whenever stoppage may be appropriate to insure the proper execution of the Contract. The Supervising Professional has the authority to reject all work and materials which do not conform to the Contract and to decide questions which arise in the execution of the work.

The Supervising Professional shall make all measurements and determinations of quantities. Those measurements and determinations are final and conclusive between the parties.

### Section 36 - Supervising Professional's Decisions

The Supervising Professional shall, within a reasonable time after their presentation to the Supervising Professional, make decisions in writing on all claims of the City or the Contractor and on all other matters relating to the execution and progress of the work or the interpretation of the contract documents.



### Section 37 - Storing Materials and Supplies

Materials and supplies may be stored at the site of the work at locations agreeable to the City unless specific exception is listed elsewhere in these documents. Ample way for foot traffic and drainage must be provided, and gutters must, at all times, be kept free from obstruction. Traffic on streets shall be interfered with as little as possible. The Contractor may not enter or occupy with agents, employees, tools, or material any private property without first obtaining written permission from its owner. A copy of the permission shall be furnished to the Supervising Professional.

### Section 38 - Lands for Work

The Contractor shall provide, at its own expense and without liability to the City, any additional land and access that may be required for temporary construction facilities or for storage of materials.

### Section 39 - Cleaning Up

The Contractor shall, as directed by the Supervising Professional, remove at its own expense from the City's property and from all public and private property all temporary structures, rubbish and waste materials resulting from its operations unless otherwise specifically approved, in writing, by the Supervising Professional.

### Section 40 - Salvage

The Supervising Professional may designate for salvage any materials from existing structures or underground services. Materials so designated remain City property and shall be transported or stored at a location as the Supervising Professional may direct.

### Section 41 - Night, Saturday or Sunday Work

No night or Sunday work (without prior written City approval) will be permitted except in the case of an emergency and then only to the extent absolutely necessary. The City may allow night work which, in the opinion of the Supervising Professional, can be satisfactorily performed at night. Night work is any work between 8:00 p.m. and 7:00 a.m. No Saturday work will be permitted unless the Contractor gives the Supervising Professional at least 48 hours but not more than 5 days notice of the Contractor's intention to work the upcoming Saturday.

### Section 42 - Sales Taxes

Under State law the City is exempt from the assessment of State Sales Tax on its direct purchases. Contractors who acquire materials, equipment, supplies, etc. for incorporation in City projects are not likewise exempt. State Law shall prevail. The Bidder shall familiarize itself with the State Law and prepare its Bid accordingly. No extra payment will be allowed under this Contract for failure of the Contractor to make proper allowance in this bid for taxes it must pay.

Section 43

**CONTRACTOR'S DECLARATION**

I hereby declare that I have not, during the period \_\_\_\_\_, 201\_\_\_\_, to  
\_\_\_\_\_, 20\_\_\_, performed any work, furnished any materials, sustained any loss, damage or  
delay, or otherwise done anything in addition to the regular items (or executed change orders) set  
forth \_\_\_\_\_ in \_\_\_\_\_ the \_\_\_\_\_ Contract \_\_\_\_\_ titled

\_\_\_\_\_,  
for which I shall ask, demand, sue for, or claim compensation or extension of time from the City,  
except as I hereby make claim for additional compensation or extension of time as set forth on the  
attached itemized statement. I further declare that I have paid all payroll obligations related to this  
Contract that have become due during the above period and that all invoices related to this Contract  
received more than 30 days prior to this declaration have been paid in full except as listed below.

There is/is not (Contractor please circle one and strike one as appropriate) an itemized statement  
attached regarding a request for additional compensation or extension of time.

\_\_\_\_\_  
Contractor \_\_\_\_\_ Date

By  
(Signature)

Its  
(Title of Office)

Past due invoices, if any, are listed below.

Section 44

**CONTRACTOR'S AFFIDAVIT**

The undersigned Contractor, \_\_\_\_\_, represents that on  
, 20\_\_\_\_\_, it was awarded a contract by the City of Ann Arbor, Michigan to  
\_\_\_\_\_ under the terms and conditions of a Contract titled  
\_\_\_\_\_.

The Contractor represents that all work has now been accomplished and the Contract is complete.

The Contractor warrants and certifies that all of its indebtedness arising by reason of the Contract has been fully paid or satisfactorily secured; and that all claims from subcontractors and others for labor and material used in accomplishing the project, as well as all other claims arising from the performance of the Contract, have been fully paid or satisfactorily settled. The Contractor agrees that, if any claim should hereafter arise, it shall assume responsibility for it immediately upon request to do so by the City of Ann Arbor.

The Contractor, for valuable consideration received, does further waive, release and relinquish any and all claims or right of lien which the Contractor now has or may acquire upon the subject premises for labor and material used in the project owned by the City of Ann Arbor.

This affidavit is freely and voluntarily given with full knowledge of the facts.

Contractor

By

(Signature)

Its

(Title of Office)

Subscribed and sworn to before me, on this \_\_\_\_\_ day of \_\_\_\_\_, 201\_\_  
\_\_\_\_\_, \_\_\_\_\_ County, Michigan

Notary Public

My commission expires on:

## **STANDARD SPECIFICATIONS**

All work under this contract shall be performed in accordance with the Public Services Department Standard Specifications in effect at the date of availability of the contract documents stipulated in the Advertisement. All work under this Contract which is not included in these Standard Specifications, or which is performed using modifications to these Standard Specifications, shall be performed in accordance with the Detailed Specifications included in these contract documents.

A copy of the Public Services Department Standard Specifications may be purchased from the Engineering Division, (Fourth Floor, City Hall, Ann Arbor, Michigan), for \$35.00 per copy. In addition, a copy of these Standard Specifications is available for public viewing at the Engineering Division office, for review Monday through Friday between the hours of 8:30 a.m. and 4:00 p.m. In addition, a copy of these Standard Specifications is available for public viewing on the City of Ann Arbor Website:

[www.a2gov.org/government/publicservices/project\\_management/privatedev/Pages/Standardspecificationbook.aspx](http://www.a2gov.org/government/publicservices/project_management/privatedev/Pages/Standardspecificationbook.aspx)

## **SECTION 02518 CONCRETE PAVERS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Concrete paver units.

#### **1.2 REFERENCES**

- A. ASTM C936 - Solid Concrete Interlocking Paving Units.

#### **1.3 SUBMITTALS**

- A. Product Data: Provide characteristics of paver unit, dimensions, and special shapes.
- B. Samples: Submit two samples of each paver size, illustrating style, size, color range and surface texture of units being provided.
- C. Manufacturer's Installation Instructions: Indicate substrate requirements and installation methods.

#### **1.4 EXTRA MATERIALS**

- A. Provide 10 square feet of each paver size.

### **PART 2 PRODUCTS**

#### **2.1 MANUFACTURERS**

- A. Belgard - Product: Lafitt Patio Slab Pavers, color: Light Grey/ Dark Grey/ Charcoal
- B. Substitutions: substitutions will be considered prior to bid submission, but only if approved 5 business days prior to bid due date.

#### **2.2 MATERIALS**

- A. Pavers: Conforming to the following:
  - Type: ASTM C936, concrete of 7,200 psi minimum, 28 day strength.
  - Air Entrained: 5 to 7 percent.
  - Moisture Content: 5 percent, maximum of 7 percent.
  - Nominal Size: Module A: 2 x 7 ½ x 15 inch.
  - Module B: 2 x 15 x 15 inch.
  - Module C: 2 x 15 x 22 7/16 inch
  - Color: Selected from manufacturer's standard range.
- B. Sand for Setting Bed: Clean washed river or bank sand containing maximum of 30 percent particle size of No. 10 sieve.
  - 1. Clean, non-plastic, free from deleterious or foreign matter, natural or manufactured from crushed rock. Do not use limestone screenings or stone dust that do not conform to the grading requirements in Table 1. When concrete pavers are subject to vehicular traffic, the sands shall be as hard as practically available.
  - 2. Sieve according to ASTM C 136.

3. Conform to the grading requirements of as shown in Table 1.

**Grading Requirements for Bedding Sand  
ASTM C 33 CSA A23.1-M94**

<b>Sieve Size</b>	<b>Percent Passing</b>	<b>Sieve Size</b>	<b>Percent Passing</b>
3/8 in.(9.5 mm)	100	10 mm	100
No. 4 (4.75 mm)	95 to 100	5 mm	95 to 100
No. 8 (2.36 mm)	85 to 100	2.5 mm	80 to 100
No. 16 (1.18 mm)	50 to 85	1.25 mm	50 to 90
No. 30 (0.600 mm)	25 to 60	0.630 mm	25 to 65
No. 50 (0.300 mm)	10 to 30	0.315 mm	10 to 35
No. 100 (0.150 mm)	2 to 10	0.160 mm	2 to 10

- C. Sand for Joints: Clean washed fine beach sand.

**Grading Requirements for Joint Sand  
ASTM C 144 ASTM C 144 CSA A82.56M  
Natural Sand Manufactured Sand**

<b>Sieve Size</b>	<b>Percent Passing</b>	<b>Sieve Size</b>	<b>Percent Passing</b>
No. 4 (4.75 mm)	100	5 mm	100
No. 8 (2.36 mm)	95 to 100	2.5 mm	95 to 100
No. 16 (1.18 mm)	70 to 100	1.25 mm	90 to 100
No. 30 (0.600 mm)	40 to 100	0.600 mm	35 to 80
No. 50 (0.300 mm)	20 to 40	0.300 mm	15 to 50
No. 100 (0.150 mm)	10 to 25	0.150 mm	2 to 15
No. 200 (0.075 mm)	0 to 10		

**2.3 EDGE RESTRAINTS**

- A. Edge restraints shall be plastic or aluminum and shall be installed in accordance with manufacturer's instructions:

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify that substrate is level, smooth, capable of supporting pavers and imposed loads, and ready to receive work of this Section.
- B. Verify gradients and elevations of substrate are correct.

**3.2 INSTALLATION**

- A. Spread sand evenly over prepared existing concrete substrate surface to a maximum thickness of 3/4 inches.
- B. Dampen and roller compact sand to level and even surface.
- C. Screed and scarify top 1/4 inch of sand.

- D. Install edge restraints per the drawings and manufacturer's recommendations.
- E. Verify that base is dry, uniform, even, and ready to support sand, pavers, and imposed loads.
- F. Ensure that pavers are free of foreign material before installation.
- G. Lay the pavers in the pattern(s) as shown on the drawings. Maintain straight pattern lines.
- H. Fill gaps at the edges of the paved area with cut pavers or edge units.
- I. Place half units or special shaped units at edge and interruptions. Maintain tight joints.
- J. Use a low amplitude plate compactor capable of at least 5,000 lbs. (22 kN) compaction at a frequency of 75 hz –100 hz.
- K. Compact the pavers, sweeping dry joint sand into the joints and vibrating until they are full. This will require at least two or three passes with the compactor. Do not compact within 3 ft (1 m) of the unrestrained edges of the paving units.
- L. All work to within 3 ft (1 m) of the laying face must be left fully compacted with sand-filled joints at the end of each day. Cover the laying face with plastic sheets overnight if not closed with cut and compacted pavers.
- M. Sweep off excess sand when the job is complete.
- N. The final surface elevations shall not deviate more than 1/4 in. under a 10 ft long straightedge.
- O. The surface elevation of pavers shall be 1 /8 to 1 /4 in. above adjacent drainage inlets, concrete collars or channels

**END OF SECTION**

## **SECTION 03100 CONCRETE FORMWORK**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Formwork for cast-in place concrete, with shoring, bracing and anchorage.
- B. Openings for other work.
- C. Form accessories.
- D. Form stripping.

#### **1.2 PRODUCTS INSTALLED BUT NOT FURNISHED UNDER THIS SECTION**

- A. Section 03300 - Cast-In-Place Concrete: Supply of concrete accessories for placement by this section.

#### **1.3 RELATED SECTIONS**

- A. Section 03300 - Cast-in-Place Concrete.

#### **1.4 REFERENCES**

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 347 - Recommended Practice For Concrete Formwork.
- C. PS 1 - Construction and Industrial Plywood.

#### **1.5 DESIGN REQUIREMENTS**

- A. Design, engineer and construct formwork, shoring and bracing to conform to code requirements; resultant concrete to conform to required shape, line, dimension and joint pattern as shown on drawings.

#### **1.6 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 301 and 318.

#### **1.7 REGULATORY REQUIREMENTS**

- A. Conform to applicable code for design, fabrication, erection and removal of formwork.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect and handle products to site.
- B. Deliver forms and installation instructions in manufacturer's packaging.
- C. Store off ground in ventilated and protected manner to prevent deterioration from moisture.



## **1.9 COORDINATION**

- A. Coordinate work with other trades.
- B. Coordinate this Section with other Sections of work which require attachment of components to formwork.
- C. If formwork is placed after reinforcement resulting in insufficient concrete cover over reinforcement, before proceeding, request instructions from Architect/Engineer.

## **PART 2 PRODUCTS**

### **2.1 WOOD FORM MATERIALS**

- A. Form Materials:
  - 1. Exposed Finish Concrete: Phenolic Plywood or other approved nonabsorptive panel material that will provide continuous, true and smooth architectural concrete surfaces, free of knots or voids, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.
  - 2. Unexposed Finish Concrete: At the discretion of the Contractor.
  - 3. Fabricate formwork to achieve joint patterns indicated on architectural drawings.

### **2.2 PREFABRICATED FORMS**

- A. Preformed Steel Forms: Minimum 16 gage matched, tight fitting, stiffened to support weight of concrete without deflection detrimental to tolerances and appearance of finished surfaces.

### **2.3 FORMWORK ACCESSORIES**

- A. Form Release Agent: Commercial formulation compounds with maximum VOC of 350mg/l, colorless mineral oil which will not stain concrete, or absorb moisture, or impair natural bonding or color characteristics of coating intended for use on concrete.
- B. Form Joint Tape: compressible foam tape; pressure sensitive, AAMA 800, Specification 810.1, Expanded Cellular Glazing Tape"; minimum ¼ inch thick.
- F. Form Joint Sealant: Elastomeric sealant complying with ASTM C920, Type M or S, Grade NS, that adheres to form joint substrates.
- G. Sealers: Penetrating formulated to reduce absorption of bleed water and prevent migration of set retarding chemicals from wood.
- G. Nails, Spikes, Lag Bolts, Through Bolts, Anchorages: Sized as required, of sufficient strength and character to maintain formwork in place while placing concrete.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify lines, levels and centers before proceeding with formwork. Ensure that dimensions agree with drawings.

### **3.2 EARTH FORMS**

- A. Hand trim sides and bottom of earth forms. Remove loose soil prior to placing concrete.

### **3.3 ERECTION - FORMWORK**

- A. Erect formwork, shoring and bracing to achieve design requirements, in accordance with requirements of ACI 301.
- B. Provide bracing to ensure stability of formwork. Shore or strengthen formwork subject to over stressing by construction loads.
- C. Arrange and assemble formwork to permit dismantling and stripping. Do not damage concrete during stripping. Damaged concrete shall be removed and replaced. Permit removal of remaining principal shores.
- D. Align joints and make watertight. Keep form joints to a minimum.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces.

### **3.4 APPLICATION - FORM RELEASE AGENT**

- A. Apply form release agent on formwork in accordance with manufacturer's recommendations.
- B. Apply prior to placement of reinforcing steel, anchoring devices, and embedded items.
- C. Do not apply form release agent where concrete surfaces will receive special finishes or applied coverings which are effected by the agent. Soak inside surfaces of untreated forms with clean water. Keep surfaces coated prior to placement of concrete.

### **3.5 INSERTS, EMBEDDED PARTS, AND OPENINGS**

- A. Provide formed openings where required for items to be embedded in passing through concrete work.
- B. Locate and set in place items which will be cast directly into concrete.
- C. Coordinate with work of other sections in forming and placing openings, slots, keyways, reglets, recesses, sleeves, bolts, anchors, blocking, screeds, bulkheads, other inserts, and components of other Work.
- D. Install accessories in accordance with manufacturer's instructions, straight, level, and plumb. Ensure items are not disturbed during concrete placement.

### **3.6 FORM CLEANING**

- A. Clean forms as erection proceeds, to remove foreign matter within forms.
- B. Clean formed cavities of debris prior to placing concrete.
- C. Flush with water or use compressed air to remove remaining foreign matter. Ensure that water and debris drain to exterior through clean-out ports.

- D. During cold weather, remove ice and snow from within forms. Do not use de-icing salts. Do not use water to clean out forms, unless formwork and concrete construction proceed within heated enclosure. Use compressed air or other means to remove foreign matter.

### **3.7 FORMWORK TOLERANCES**

- A. Construct formwork to maintain tolerances required by ACI 301.

### **3.8 FIELD QUALITY CONTROL**

- A. Inspect erected formwork, shoring, and bracing to ensure that work is in accordance with formwork design, and that supports, fastenings, wedges, ties, and items are secure.
- B. Do not reuse wood formwork more than 2 times for concrete surfaces to be exposed to view. Do not patch formwork.

### **3.9 FORM REMOVAL**

- A. Do not remove forms or bracing until concrete has gained sufficient strength to carry its own weight and imposed loads.
- B. Loosen forms carefully. Do not wedge pry bars, hammers, or tools against finish concrete surfaces scheduled for exposure to view.
- C. Store removed forms in manner that surfaces to be in contact with fresh concrete will not be damaged. Discard damaged forms.

### **3.10 Schedules**

- A. Slab and walk edges, not exposed to view: contractors choice with form oil.

**END OF SECTION**

## **SECTION 03300 CAST-IN-PLACE CONCRETE**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Cast-in-place, slabs on grade.

#### **1.2 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION**

- A. Concrete Formwork: Placement of joint device and joint device anchors in formwork.

#### **1.3 RELATED SECTIONS**

- A. Section 03100 – Concrete Formwork.
- B. Section 03370 - Concrete Curing.
- C. Section 07900 - Joint Sealers.

#### **1.4 REFERENCES**

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Guide for Concrete Floor and Slab Construction.
- C. ACI 304 - Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete.
- D. ACI R - Hot Weather Concreting.
- E. ACI 306R - Cold Weather Concreting.
- F. ACI 308 - Standard Practice for Curing Concrete.
- G. ACI 318 - Building Code Requirements for Reinforced Concrete.
- H. ANSI/ASTM D994 - Preformed Expansion Joint Filler for Concrete (Bituminous Type).
- I. ANSI/ASTM D1190 - Concrete Joint Sealer, Hot-Poured Elastic Type.
- J. ASTM C33 - Concrete Aggregates.
- K. ASTM C94 - Ready-Mixed Concrete.
- L. ASTM C150 - Portland Cement.
- M. ASTM C260 - Air Entraining Admixtures for Concrete.
- N. ASTM C494 - Chemicals Admixtures for Concrete.
- O. ASTM C618 - Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete.

#### **1.5 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 301.

- B. Acquire cement and aggregate from same source for all work.
- C. Conform to ACI 305R when placing concrete during hot weather.
- D. Conform to ACI 306R when placing concrete during cold weather.

## **1.6 COORDINATION**

- A. Coordinate the placement of joint devices with erection of concrete formwork and placement of form accessories.

## **PART 2 PRODUCTS**

### **2.1 CONCRETE MATERIALS**

- A. Cement: ASTM C150, Type I - Normal Type IA - Air Entraining. Use one brand of cement throughout project unless otherwise approved by Architect.
- B. Fine and Coarse Aggregates: ASTM C33. Provide aggregates from a single source for exposed concrete.
  - 1. For exposed exterior surfaces, do not use fine or coarse aggregates containing deleterious substances which may cause spalling.
- C. Water: Clean and not detrimental to concrete.

### **2.2 ADMIXTURES**

- A. Air Entrainment: ASTM C260; Certified by manufacturer to be compatible with other required admixtures.
- B. Fly Ash: ASTM C618 Type "C" or Type "F".
- C. Water Reducing Admixtures: ASTM C494, Type "A".
- D. High-Range Water Reducing Admixture (Superplasticizer): ASTM C494, Type "F" or Type "G".
- E. Water Reducing Accelerating Admixture: ASTM C494, Type "E".
- F. Water Reducing, Retarding Admixture: ASTM C494, Type "D".

### **2.3 ACCESSORIES**

- A. Moisture Reducing Cover: One of the following:
  - 1. Waterproof paper
  - 2. Polyethylene film.
  - 3. polyethylene coated burlap.
- B. Bond Agent: Aqueous Resin Adhesive of polyvinyl acetate base. Equal to "Euco Weld."
- C. Water Repellant Sealer: equal to "L & M - Aquapel"

### **2.4 JOINT DEVICES AND FILLER MATERIALS**

- A. Joint Filler: ASTM D1751; Asphalt impregnated fiberboard or felt, 1/2 inch thick; tongue and groove profile.

- B. Construction Joint Devices: Integral extruded plastic 1/2" thick, formed to tongue and groove profile, with removable top strip exposing sealant trough, knockout holes spaced at 6 inches, ribbed steel spikes with tongue to fit top screed edge.
- C. Sealant and Primer: as specified in Section 07900.

**2.5 CONCRETE MIX**

- A. Mix concrete in accordance with ACI 304. Deliver concrete in accordance with ASTM C94
- B. Select proportions for normal weight concrete in accordance with ACI 301 Method 2.
- C. Provide normal weight concrete to the following criteria for exposed finish surfaces, paving and exterior exposed surfaces.

Unit	Measurement
Compressive Strength (7 day)	3,500 psi
Compressive Strength (28 day)	4,000 psi (air-entrained)
Water/Cement Ratio (maximum)	0.46 by weight (mass)
Aggregate Size (maximum)	1 inch
Aggregate Size (minimum)	3/8 inch
Slump - Plus or minus	1 inch 3 inches

- D. Use accelerating admixtures in cold weather only when approved by Architect/Engineer. Use of admixtures will not relax cold weather placement requirements.
- E. Use of calcium chloride will not be permitted.
- F. Use set retarding admixtures during hot weather only when approved by Architect/Engineer.
- G. Add air entraining agent to normal weight concrete mix for work exposed to exterior at manufacturers prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent with the following limits:
  - 1. Concrete structures and slabs exposed to freezing and thawing, deicing chemicals, or hydraulic pressure:
    - a. 4.5 percent (moderate exposure); 5.5 percent (severe exposure) 1-1/2 inch max. aggregate.
    - b. 4.5 percent (moderate exposure); 6.0 percent (severe exposure) 1 inch max. aggregate.
    - c. 5.0 percent (moderate exposure); 6.0 percent (severe exposure) 3/4 inch max. aggregate.
    - d. 5.5 percent (moderate exposure); 7.0 percent (severe exposure) 1/2 inch max. aggregate.
  - I. Limit the use of Fly-ash to not exceed 25 percent of cement content by weight.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Verify site conditions prior to placement of concrete.

- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not cause hardship in placing concrete.

### **3.2 PREPARATION**

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- B. In locations where new concrete is dowelled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout or epoxy adhesive.
- C. Inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work; cooperate with other trades in setting such work.

### **3.3 PLACING CONCRETE**

- A. Place concrete in accordance with ACI 301.
- B. Ensure reinforcement, inserts, embedded parts, formed expansion and contraction joints are not disturbed during concrete placement.
- C. Place concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continually, provide construction joints as herein specified. Deposit concrete to avoid segregation at its final location.
- D. Separate slabs on grade from vertical surfaces with 1/2 inch thick joint filler.
- E. Place joint filler in slab in pattern indicated on drawings. Set top to required elevations. Secure to resist movement by wet concrete.
- F. Extend joint filler from bottom of slab to within 1/4 inch of finished slab surface. Conform to Section 07900 for finish joint sealer requirements.
- G. Maintain records of concrete placement. Record date, location, quantity, air temperature, and test samples taken.
- H. Place concrete continuously between predetermined expansion, control, and construction joints.
- I. Do not interrupt successive placement; do not permit cold joints to occur.
- J. Screed floors and slabs on grade level, maintaining surface flatness of maximum 1/8 inch in 12 ft.
- K. Cold-Weather Placing: Comply with ACI 306 as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
  - 1. When air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 degrees F and not more than 80 degrees F at point of placement.

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 accepted in mix designs.

Q. Hot-Weather placing: When hot weather conditions exist that could seriously impair quality and strength of concrete, place concrete in compliance with ACI 305 and as herein specified.

1. Cool ingredients before mixing to maintain concrete temperatures at time of placement below 90 degrees F. Mixing water may be chilled, or chopped ice may be used to control temperature provided water equivalent of ice is calculated to total amount of mixing water. Use of liquid nitrogen to cool concrete is contractor's option.
2. Cover reinforcing steel with water soaked burlap if it becomes too hot, so that steel temperature will not exceed the ambient temperature immediately before embedment in concrete.
3. Fog spray forms, reinforcing steel, and subgrade just before concrete is placed.
4. Use water reducing retarding admixture when required by high temperatures, low humidity, or other adverse placing conditions, when accepted by Architect/Engineer.

### **3.4 CONCRETE FINISHING**

- A. Finish concrete floor surfaces in accordance with ACI 301.

### **3.5 CURING AND PROTECTION**

- A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
- B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
- C. Cure concrete floor surfaces to requirements of Section 03370.

### **3.6 FIELD QUALITY CONTROL**

- A. Field inspection and testing to be performed by an independent testing company.
- B. Provide free access to Work and cooperate with appointed firm.
- C. Submit proposed mix design of each class of concrete to inspection and testing firm for review prior to commencement of Work.
- D. Tests of cement and aggregates may be performed to ensure conformance with specified requirements.
- E. Three concrete test cylinders will be taken for every 75 or less cubic yds. of each class of concrete placed.
- F. One additional test cylinder will be taken during cold weather concreting, cured on job site under same conditions as concrete it represents.
- G. One slump test will be taken for each set of test cylinders taken.



**3.7 PATCHING**

- A. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.
- B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Architect/Engineer upon discovery.
- C. Patch imperfections in accordance with ACI 301.

**3.8 DEFECTIVE CONCRETE**

- A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements will not be accepted.
- B. Repair or replacement of defective concrete will be determined by the Architect/Engineer.
- C. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

**3.9 SCHEDULE - CONCRETE TYPES AND FINISHES**

- A. Exterior slabs and sidewalks: 4,000 psi at 28 day strength, steel trowel with light broom finish.

**END OF SECTION**

## **SECTION 03370 CONCRETE CURING**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Initial and final curing of horizontal and vertical concrete surfaces.

#### **1.2 RELATED SECTIONS**

- A. Section 03300 - Cast-In-Place Concrete.

#### **1.3 REFERENCES**

- A. ACI 301 - Structural Concrete for Buildings.
- B. ACI 302 - Recommended Practice for Concrete Floor and Slab Construction.
- C. ACI 308 - Standard Practice for Curing Concrete.
- D. ASTM C171 - Sheet Materials for Curing Concrete.
- E. ASTM C309 - Liquid Membrane-Forming Compounds for Curing Concrete.
- F. ASTM D2103 - Polyethylene Film and Sheeting.

#### **1.4 QUALITY ASSURANCE**

- A. Perform Work in accordance with ACI 301.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect and handle products in accordance with manufacturer's instructions.
- B. Deliver curing materials in manufacturer's packaging including application instructions.

### **PART 2 PRODUCTS**

#### **2.1 MATERIALS**

- A. Membrane Curing Compound (Type B): ASTM C309, Type 2, Class A (white pigmented); water based type, clear, without fugitive dye;
- B. Absorptive Mats (Type C): ASTM C171, burlap-polyethylene, minimum 8 oz/sq. yd., bonded to prevent separation during handling and placing.
- C. Polyethelene film (Type D): ASTM C171, 6 mil thick, clear.
- D. Water: Potable and not detrimental to concrete.

### **PART 3 EXECUTION**

#### **3.1 EXAMINATION**

- A. Verify substrate conditions.

- B. Verify that substrate surfaces are ready to be cured.

### **3.2 EXECUTION - HORIZONTAL SURFACES**

- A. Cure horizontal surfaces in accordance with ACI 308.
- B. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation control material. Apply curing compounds in accordance with manufacturer's instructions after screeding and bull floating, but before floating and troweling.
- C. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. weather permitting, keep continuously moist for not less than 7 days.
- D. Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing and by combinations thereof, as herein specified.
  - 1. Moisture Curing: Keep concrete surface continuously wet by spraying with water, covering with water and/or covering concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4 inch lap over adjacent absorptive covers.
  - 2. Moisture-retaining cover for concrete curing to be placed in widest practicle width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period.
  - 3. Provide curing and sealing compound to exposed interior and exterior concrete slabs, walks, and curbs as follows:
    - a. Apply specified curing and sealing compound to concrete as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.
    - b. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.
  - 4. Cure formed concrete surfaces, retaining walls and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.
  - 5. Final curing concrete surfaces to be by use of moisture-retaining cover, unless otherwise noted.

### **3.3 PROTECTION OF FINISHED WORK**

- A. Protect finished work in accordance with ACI 308.
- B. Do not permit traffic over unprotected surfaces.

**3.4 SCHEDULES**

- A. Exterior Walks & Curbs: Membrane Curing Compound (Type B) white pigment.

**END OF SECTION**

## **SECTION 03732 CONCRETE REPAIR**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Preparation of concrete and application of repair materials.
- B. Restoration of concrete surfaces.

#### **1.2 RELATED SECTIONS**

- A. Section 09900: Applied finish to repaired concrete surface.

#### **1.3 REFERENCES**

- A. ASTM C109 – Compressive Strength
- B. ASTM C150 - Portland Cement.
- B. ASTM C404 - Aggregates for Masonry Grouts.
- C. ASTM C882 - Bond Strength of Epoxy Resin Systems Used with Concrete.
- D. ASTM D638 - Test Method for Tensile Properties of Plastics.
- E. ASTM D695 - Compressive Properties of Rigid Plastics.
- F. ASTM D790 - Flexural Properties of Plastics and Electrical Insulating Materials.

#### **1.4 SUBMITTALS**

- A. Product Data: Indicate product standards, physical and chemical characteristics, technical specifications, limitations, maintenance instructions, and general recommendations regarding each material.

#### **1.5 QUALITY ASSURANCE**

- A. Perform welding work in accordance with manufacturer's instructions.

#### **1.6 QUALIFICATIONS**

- A. Materials Manufacturer: Company specializing in manufacturing the products specified in this Section with minimum five years documented experience.
- B. Applicator: Company specializing in concrete repair with minimum five years documented experience and approved by manufacturer.

#### **1.7 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect and handle products to site in accordance with manufacturer's instructions.
- B. Comply with instructions for storage, shelf life limitations, and handling.

## **PART 2 PRODUCTS**

### **2.1 PATCHING MATERIALS**

- A. Epoxy System: Two-part epoxy adhesive, meeting the following minimum characteristics:  
Basis of Design: EUCO #452 as manufactured by The Euclid Chemical Company.

<u>Characteristic</u>	<u>Test Method</u>	<u>Results</u>
Bond Strength	ASTM C882	2,500 psi
Water Absorption		0.081%
Compressive Modulus		321,664 psi
Compressive Strength	ASTM D695	11,360 psi

- B. Rapid Setting Repair Material: cement based concrete of blended Portland cements, finely graded aggregates and specific chemical additives which undergoes a chemical “hyper hydration” to produce a stable, low permeability, cementitious matrix.

Basis of Design: SPEED CRETE RED LINE as manufactured by The Euclid Chemical Company.

<u>Characteristic</u>	<u>Test Method</u>	<u>Results</u>
Compressive Strength	ASTM C109	2,500 psi (24 Hrs) - 5,900 (28 days)
Split Tensile Strength	ASTM C496	500 psi (28 days)
Flexural Strength	ASTM C348	918 psi (28 days)
Shrinkage (50% RH)	ASTM C157	0.069%
Expansion (100% RH)	ASTM C157	0.077%

- C. Bonding Agent: DURALPREP AC as manufactured by The Euclid Chemical Company.
- D. Portland Cement: ASTM C150, Type S, grey color.
- E. Sand: ASTM C33; uniformly graded, clean.
- F. Water: Clean and potable.
- G. Cleaning Agent: as recommended by manufacturer.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that surfaces are ready to receive work.
- B. Beginning of installation means acceptance of existing surfaces.

### **3.2 PREPARATION**

- A. Clean concrete surfaces of dirt, laitance, corrosion, or other contamination; wire brush using water; rinse surface and allow to dry.
- B. Flush out cracks and voids with chemical solvent to remove laitance and dirt. Chemically neutralize by rinsing with water.
- C. For areas patched with epoxy mortar, remove broken and soft concrete ¼ inch minimum depth. Remove corrosion from steel. Clean surfaces mechanically; wash in accordance with

manufacturer's recommendations; rinse with water.

### **3.3 REPAIR WORK**

- A. Repair exposed structural, shrinkage, and settlement cracks of concrete as indicated on Drawings by the epoxy injection method.
- B. Repair spalling, fill voids flush with surface and apply surface finish.

### **3.4 INJECTION - EPOXY RESIN ADHESIVE**

- A. Inject adhesive into prepared ports under pressure using equipment appropriate for particular application.
- B. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.
- C. Remove temporary seal and excess adhesive.
- D. Clean surfaces adjacent to repair and blend finish.

### **3.5 APPLICATION - CEMENTITIOUS MORTAR**

- A. Apply spray or brush coating of bonding agent to dry concrete surfaces. Provide full surface coverage.
- B. Apply cementitious mortar by steel trowel to an average thickness of 1/4 inches. Tamp into place filling voids at spalled areas. Work mix into honeycomb.
- C. Damp cure cementitious mortar as recommended by manufacturer.

### **3.6 SCHEDULE**

- A. Pergola slab and base: Rapid Setting Repair Material, trowel finish – match texture and finish of adjacent surfaces.
- B. Cracks in slab and base: Epoxy resin injection, roughened surface finish to match adjacent work.

**END OF SECTION**

## **SECTION 06112 FRAMING AND SHEATHING**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Structural Roof Framing.
- B. Built-up structural beams, headers and lintels.
- C. Preservative treatment of wood.
- D. Miscellaneous framing and sheathing.

#### **1.2 RELATED SECTIONS**

- A. Section 06200: Finish Carpentry

#### **1.3 REFERENCES**

- A. ALSC - American Lumber Standards Committee: Softwood Lumber Standards.
- B. APA: American Plywood Association.
- C. AWWA (American Wood Preservers Association) C1 - All Timber Products Preservative Treatment by Pressure Process.
- D. NFPA: National Forest Products Association.
- E. SPIB: Southern Pine Inspection Bureau.

#### **1.4 QUALITY ASSURANCE**

- A. Perform Work in accordance with the following agencies:
  - 1. Lumber Grading Agency: Certified by ALSC.
  - 2. Plywood Grading Agency: Certified by APA.
- B. In lieu of grade stamping exposed to view lumber and plywood, submit manufacturer's certificate that products meet or exceed specified requirements.

#### **1.5 DELIVERY, STORAGE, AND HANDLING**

- C. Deliver, store, protect, and handle products to site.
- B. Keep materials dry and under cover. Protect against exposure to weather and contact with damp or wet surfaces. Stack lumber as well as plywood and other panels: provide for air circulation within and around stacks and under temporary coverings including polyethylene and similar materials.

### **PART 2 PRODUCTS**

#### **2.1 LUMBER MATERIALS**

- A. To comply with PS 20, S4S and with applicable grading rules of inspection agencies certified by



American Lumber Standards Committee's (ALSC) Board of Review, 19 percent maximum moisture content.

- B. Beam Framing: SPF # 2 or Hem Fir # 2, 19 percent maximum moisture constant, size as indicated in drawings. (Pressure Treated)
- C. Light framing provide "Stud" or "Standard" grade lumber for stud framing and standard grade for other light framing, any species. (Pressure Treated)
  - 1. Miscellaneous Framing: Construction Grade, any species of specified grade and under WWPA or WCLIB rules, 19 percent maximum moisture content.
- D. Joist, Decking and rails: SPF # 2 or Hem Fir # 2, 19 percent maximum moisture constant, size as indicated in drawings. (Pressure Treated)

## **2.2 SHEATHING MATERIALS**

- A. Exterior Plywood Sheathing: APA Rated Sheathing, Structural I, Span Rating as required to suit spacing indicated; 48 x 96 inch sized sheets, square edges, Exposure Durability 1; unsanded. (Pressure treated)

## **2.3 ACCESSORIES**

- A. Fasteners and Anchors:
  - 1. Fasteners: Hot-dipped galvanized steel for high humidity and treated wood locations, unfinished steel elsewhere.
  - 2. Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete. Bolt or ballistic fastener for anchorages to steel.
- B. Die Stamped Connectors: Hot dip galvanized steel, sized to fit framing conditions

## **2.4 FACTORY WOOD TREATMENT**

- A. Wood Preservative (Pressure Treatment: WPA Treatment C1 using water borne preservative with 0.25 percent retainage.

## **PART 3 EXECUTION**

### **3.1 FRAMING**

- A. Set structural members level, plumb and true, in correct position.
- B. Make provisions for existing structure and erection loads, and for sufficient temporary shoring and bracing to maintain structure safe, plumb, and in true alignment until completion of demolition and installation of permanent framing and bracing.
- C. Place horizontal members flat, crown side up.
- D. Construct load bearing framing members full length without splices.
- E. Reconstruct top landing of stairway to provide a level landing and tread. Replace framing

members, decking, rails and post.

**3.2 SHEATHING**

- A. Secure roof sheathing with long dimension perpendicular to joists or studs, with ends over firm bearing and staggered.

**3.3 TOLERANCES**

- A. Framing Members: 1/4 inch from true position, maximum.

**END OF SECTION**

**SECTION 06200 FINISH CARPENTRY**

**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Finish carpentry items trim and moldings

**1.2 RELATED SECTIONS**

- A. Section 06112 – Framing and Sheathing
- B. Section 07900 – Joint Sealers
- C. Section 09900 - Painting: Painting and finishing of finish carpentry items.

**1.3 REFERENCES**

- A. AWI - Quality Standards.
- B. AWWA (American Wood Preservers Association) C2 - Lumber, Timbers, Bridge Ties and Mine Ties - Preservative Treatment by Pressure Processes.
- C. FS MMM-A-130 - Adhesive, Contact.
- D. PS 1 - Construction and Industrial Plywood.
- E. PS 20 - American Softwood Lumber Standard.
- F. UL - Underwriters Laboratories.
- G. ASTM D 792 – Density and Specific Gravity of Plastics by Displacement.
- H. ASTM D 570 – Water Absorption of Plastics.
- I. ASTM D 638 – Tensile Property of Plastics.
- J. ASTM D 790 – Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- K. ASTM D 792 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement.
- L. ASTM D 1761- Mechanical Fasteners in Wood.
- M. ASTM D 5420 – Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimen by means of a Striker Impacted by Falling Weight.
- N. ASTM D 256 – Determining the Pendulum Impact Resistance of Plastics.
- O. ASTM D 696 – Coefficient of Linear Thermal Expansion of Plastics Between -30 deg C and 30 deg C with a Vitreous Silica Dilatometer.
- P. ASTM D 635 - Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.

- Q. ASTM E 84 – Surface Burning Characteristics of Building Materials
- R. ASTM D 648 – Deflection Temperature of Plastics Under Flexural Load in Edgewise Position.

#### **1.4 SUBMITTALS**

- A. Samples: provide a mock-up of beam and rafter sections minimum of 12” long indicating construction components and molding profiles for owner approval prior to construction.

#### **1.5 QUALITY ASSURANCE**

- A. Perform work in accordance with AWI Premium quality.
- B. Install PVC cellular trim material in accordance with manufacturer’s instructions.
- C. PVC Material Workmanship, Finish and Appearance: free foam cellular PVC that is homogeneous and free of voids, holes, cracks, and foreign inclusions and other defects. Edges to be square, top and bottom surfaces to be flat with no convex or concave deviation.
- D. Manufacturer Qualifications: A minimum of 10 years in the manufacture of PVC products.
- E. Installer Qualifications: A minimum of 3 years in the installation of PVC products.

#### **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver, store, protect and handle products to site.
- B. Store products in manufacturer's unopened packaging until ready for installation.
- C. Protect materials from exposure to moisture. Do not deliver until after wet work is complete and dry.
- D. Protect work from damage from other trades.

#### **1.7 FIELD MEASUREMENTS**

- A. Field measure size and profile of existing trim to be replaced and match with new moldings with profile as close as possible to matching the existing.

#### **1.8 WARRANTY**

- A. Warrant to the original Owner under normal and proper use to be free of manufacturing defects for a period of 25 years.

### **PART 2 PRODUCTS**

#### **2.1 LUMBER MATERIALS**

- A. Softwood Lumber: PS 20; Graded in accordance with AWI Premium; maximum moisture content of 6 percent; of quality suitable for transparent finish.

#### **2.2 FASTENERS FOR WOOD**

- A. Adhesive: Type recommended by AWI to suit application.

- B. Fasteners: Of size and type to suit application; finish in concealed and exposed locations.
- C. Bolts, Nuts, Washers, Lags, Pins, and Screws: Of size and type to suit application.
- D. Concealed Joint Fasteners: Threaded steel.

## 2.4 ACCESSORIES FOR WOOD

- A. Lumber for Shimming and Blocking: softwood species.
- B. Primer: Alkyd primer sealer type.
- C. Wood Filler: Solvent base, tinted to match surface finish color.

## 2.5 PVC CELLULAR TRIM MATERIALS

- A. Manufacturer's:
  - 1. CertainTeed Corp., CertainTeed Restoration Millwork.
  - 2. AZEK Trimboards manufactured Vycom Corporation
- B. Material: Free foam cellular PVC material with small cell microstructure with the following properties.

Density	ASTM D 792	55 grams/ cm <sup>3</sup>
Water Absorption	ASTM D 570	0.15%
Tensile Strength	ASTM D 638	1,261 psi
Tensile Modulus	ASTM D 638	79,463 psi
Flexural Strength	ASTM D 790	3,329 psi
Flexural Modulus	ASTM D 790	144,219 psi
Nail Hold	ASTM D 1761	35 lbs/in penetration
Screw Hold	ASTM D 1761	593 lbs/in penetration

- C. Finish: natural white color with smooth finish.
- D. Accessories:
  - 1. Fasteners:
    - a. Use fasteners designed for wood trim and siding (thinner shank, blunt point, full round head).
    - b. Use a highly durable fastener such as stainless steel or hot dipped galvanized steel.
    - c. Staples, small brads and wire nails must not be used as fastening members.
    - d. Fasteners should be long enough to penetrate a solid wood substrate a minimum of 1-1/2 inch (38 mm).
    - e. The use of standard nail guns is acceptable.
    - f. Use two fasteners per every framing member for trimboard applications. Use additional fasteners for trimboards 12 inches (305 mm) or wider, as well as sheets.
    - g. Install fasteners no more than 2 inches (51 mm) from the end of the board.
    - h. Fasten trim into a flat, solid substrate. Fastening trim into hollow or uneven areas must be avoided.
    - i. Pre-drilling is typically not required unless a large fastener is used or product is being installed in low temperatures
    - j. Use Concealed self drilling-countersunk fastener with smooth white plug when possible, equal to Fastenmaster Cortex.
  - 2. Adhesives:
    - a. Glue all trim joints (scarf or miter) with a cellular PVC cement/adhesive such as TrimTight or Bond & Fill.

- b. Glue joints should be secured with a fastener and/or fastened on each side of the joint to allow adequate bonding time.
  - c. Surfaces to be glued should be smooth, clean and in complete contact with each other.
  - d. Various adhesives may be used. Consult adhesive manufacturer to determine suitability.
3. Sealants:
- a. Use urethane, polyurethane or acrylic based sealants without silicone as specified in Section 07910

## **2.6 WOOD TREATMENT PROCESSES**

- A.. Wood Preservative by Pressure Treatment (PT Type): AWWPA Treatment C2 using water borne preservative with 0.25 percent retainage.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify adequacy of backing and support framing.
- B. Verify mechanical, electrical, and building items affecting work of this section are placed and ready to receive this work.

### **3.2 WOOD INSTALLATION**

- A. Set and secure materials and components in place, plumb and level.
- B. Carefully scribe work abutting other components, with maximum gaps of 1/32 inch. Do not use additional overlay trim to conceal larger gaps.
- C. Install components and trim with nails, screws bolts with blind fasteners or wall adhesive by gun application as required for desired finish.

### **3.3 PVC INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
  - 1. Comply with all terms necessary to maintain warranty coverage.
  - 2. Use trim details indicated on Drawings.
  - 3. Touch up all field cut edges before installing.
- B. Cutting:
  - 1. Use carbide tipped blades designed to cut wood. Do not use fine-tooth metal-cutting blades or plywood blades.
  - 2. Avoid rough edges from cutting caused by: excessive friction, poor board support, worn saw blades or badly aligned tools.
- C. Drilling:
  - 1. Drill with standard woodworking drill bits.
  - 2. Do not use bits made for rigid PVC.
  - 3. Avoid frictional heat build-up and remove shavings from the drill hole frequently.

- D. Milling:
  - 1. Mill using standard milling machines used to mill lumber.
  - 2. Relief angle 20 to 30 degrees.
  - 3. Cutting speed to be optimized with the number of knives and feed rate.
  
- E. Routing:
  - 1. Use sharp carbide tipped router bits.
  
- F. Edge Finishing:
  - 1. Use machine edging, sanding, grinding, or filling to finish edges.
  
- G. Nail Location:
  - 1. Refer to fastening schedule and diagrams in the most current version of the manufacturer's installation manual for recommended fastener spacing.
  - 2. Install fasteners no more than 3/4 inches from the end of each board.
  
- H. Thermal Expansion and Contraction:
  - 1. Expansion and contraction will occur with changes in temperature.
  - 2. When properly fastened, allow 1/4 inch per 18 foot for expansion and contraction.
  - 3. Joints between pieces should be glued to eliminate joint separation. When gaps are glued on a long run, allow for expansion and contraction at the end of the runs.
  - 4. Glue mitered joints for a tight seam.
  
- I. Finishing.
  - 1. Correct dents and gouges before applying final coating.
  - 2. Prepare surfaces and paint materials as recommended by the molding manufacturer. Paint as specified in Section 09900.
  - 3. If moldings get dirty during installation, clean with a soft bristle brush and a bucket of soapy water. For stubborn stains, mold or mildew, use a cleaner suitable for PVC products

### **3.4 PREPARATION FOR SITE FINISHING**

- A. Set exposed fasteners. Apply wood filler in exposed fastener indentations. Sand, work smooth.

### **3.5 ERECTION TOLERANCES**

- A. Maximum Variation from True Position: 1/16 inch.
- B. Maximum Offset from True Alignment with Abutting Materials: 1/32 inch.

**END OF SECTION**

## **SECTION 07900 JOINT SEALERS**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Preparing substrate surfaces.
- B. Sealant and joint backing.

#### **1.2 RELATED SECTIONS**

- A. Section 03300: Sealants required in conjunction with cast-in-place concrete.

#### **1.3 REFERENCES**

- A. ASTM C790 - Use of Latex Sealing Compounds.
- B. ASTM C804 - Use of Solvent-Release Type Sealants.
- C. ASTM C834 - Latex Sealing Compounds.
- D. ASTM C919 - Use of Sealants in Acoustical Applications.
- E. ASTM C920 - Elastomeric Joint Sealants.
- F. ASTM D1056 - Flexible Cellular Materials - Sponge or Expanded Rubber.
- G. ASTM D1565 - Flexible Cellular Materials - Vinyl Chloride Polymers and Copolymers (Open-Cell Foam).
- H. SWRI (Sealant, Waterproofing and Restoration Institute) - Sealant and Caulking Guide Specification.

#### **1.4 SUBMITTALS**

- A. Product Data: Provide data indicating sealant chemical characteristics, performance criteria, substrate preparation, limitations, and color availability.

#### **1.5 QUALITY ASSURANCE**

- A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.
- B. Perform acoustical sealant application work in accordance with ASTM C919.

#### **1.6 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum three years documented experience.
- B. Applicator: Company specializing in performing the work of this section with minimum 3 years documented experience.



## **1.7 COORDINATION**

- A. Coordinate the work with all sections referencing this section.

## **1.8 WARRANTY**

- A. Provide written 2 year warranty.
- B. Warranty: Include coverage for installed sealants and accessories which fail to achieve air tight seal, water tight seal, and exhibit loss of adhesion or cohesion, or do not cure.

## **PART 2 PRODUCTS**

### **2.1 SEALANTS**

- A. Construction Sealant (exterior) shall be Polyurethane type M, Grade-Ns, Class 25 in manufacturer's standard color designated by the Architect.

### **2.2 ACCESSORIES**

- A. Primer: Non-staining type, recommended by sealant manufacturer to suit application.
- B. Joint Cleaner: Non-corrosive and non-staining type, recommended by sealant manufacturer; compatible with joint forming materials.
- C. Joint Backing: ASTM D1056; round, open cell foam rod; oversized 40 to 50 percent larger than joint width; as manufactured by WILL-SEAL, COMPRIBAND, THERMAL PRODUCTS INC., OR DOW CHEMICAL CO.
- D. Bond Breaker: Pressure sensitive tape recommended by sealant manufacturer to suit application.

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that substrate surfaces and joint openings are ready to receive work.
- B. Verify that joint backing and release tapes are compatible with sealant.

### **3.2 PREPARATION**

- A. Remove loose materials and foreign matter which might impair adhesion of sealant.
- B. Clean and prime joints in accordance with manufacturer's instructions.
- C. Perform preparation in accordance with manufacturer's instructions.
- D. Protect elements surrounding the work of this section from damage or disfiguration.

### **3.3 INSTALLATION**

- A. Install sealant in accordance with manufacturer's instructions.
- B. Measure joint dimensions and size materials to achieve required width/depth ratios.

- C. Install joint backing to achieve a neck dimension no greater than 1/2 of the joint width but not less than 1/8 inch nor more than 1/2 inch.
- D. Install bond breaker where joint backing is not used.
- E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags.
- F. Apply sealant within recommended application temperature ranges. Consult manufacturer when sealant cannot be applied within these temperature ranges.
- G. Tool joints smooth

**3.4 CLEANING**

- A. Clean adjacent soiled surfaces.

**3.5 PROTECTION OF FINISHED WORK**

- A. Protect sealants until cured to a tough, flexible, firm substrate that will easily conform to extreme conditions of expansion and contraction.

**END OF SECTION**

## **SECTION 09306: FLOOR TILE**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Porcelain tile floor finish using a two part acrylic latex additive to a dry set mortar application method.
- B. Concrete Paver using the mortar bed application method.

#### **1.2 RELATED SECTIONS**

- A. Section 07900 - Joint Sealers

#### **1.3 REFERENCES**

- A. ANSI A108.3 - Quarry Tile and Paver Tile Installed With Portland Cement Mortar.
- B. ANSI A108.5 - Installation of Porcelain Tile with Dry-Set Portland Cement Mortar or Latex Portland Cement Mortar.
- C. ANSI A108.10 - Installation of Grout in Tile work.
- D. ANSI A118.1 - Dry-Set Portland Cement Mortar.
- E. ANSI A118.4 - Latex-Portland Cement Mortar.
- F. ANSI A118.6 - Ceramic Tile Grouts.
- G. ANSI A118.8 - Modified Epoxy Emulsion Mortar/Grout.
- H. ANSI A137.1 - Standard Specifications for Ceramic Tile.
- I. TCA (Tile Council of America) - Handbook for Ceramic Tile Installation.

#### **1.4 SUBMITTALS**

- A. Product Data: Provide instructions for using adhesives and grouts.
- B. Samples: Mount tile and apply grout on a plywood panel, 24 inch x 24 inch in size illustrating pattern, color variations, and grout joint size variations.
- C. Manufacturer's Certificate: Certify that Products meet or exceed specified requirements and ANSI A137.1.

#### **1.5 MAINTENANCE DATA**

- A. Maintenance Data: Include recommended cleaning methods, cleaning materials, stain removal methods, and polishes and waxes.

#### **1.6 QUALITY ASSURANCE**

- A. Conform to TCA Handbook, ANSI A108.3 and ANSI A108.5.

- B. Maintain one copy of document on site.

#### **1.7 QUALIFICATIONS**

- A. Manufacturer: Company specializing in manufacturing the Products specified in this section with minimum five years documented experience.
- B. Installer: Company specializing in performing the work of this section with minimum three years documented experience.

#### **1.8 DELIVERY, STORAGE, AND HANDLING**

- A. Protect adhesives from freezing or overheating in accordance with manufacturer's instructions.

#### **1.9 ENVIRONMENTAL REQUIREMENTS**

- A. Maintain 50 degrees F during installation of mortar materials.

#### **1.10 EXTRA MATERIALS**

- A. Provide 10 sq ft of each size, color, and surface finish of tile specified.

### **PART 2 PRODUCTS**

#### **2.1 TILE MANUFACTURERS**

- A. Marazzi - Product: Monolith.
  - 1. Lower Walk Surface – Color: Grey
  - 2. Raised Column Slab – Color: Black

#### **2.2 CERAMIC TILE MATERIALS**

- A. Porcelain Tile at Lower Walking Surface: conforming to the following:
  - 1. Moisture Absorption: 0 to 0.05 percent
  - 2. Size: 24 inch x 24 inch x ½ inch.
  - 3. Shape: square
  - 4. Edge: rectified
  - 5. Surface Finish: slip resistant.
  - 6. Color: Grey
- B. Porcelain Tile at Raised Column Slab: conforming to the following:
  - 7. Moisture Absorption: 0 to 0.05 percent
  - 8. Size: 12 inch x 24 inch x ½ inch.
  - 9. Shape: square
  - 10. Edge: rectified
  - 11. Surface Finish: slip resistant.
  - 12. Color: Black

#### **2.3 SETTING MATERIALS**

- A. Manufacturers:
  - 13. Mapei – Product: Kerabond/Keraplastic.

- B. Mortar Materials: ANSI A118.4 Latex Modified, Portland cement, sand, latex additive and water.

## **2.4 GROUT MATERIALS**

- A. Manufacturers:
  - 1. Mapei – Product: Ultracolor Plus.
- B. Grout: ANSI A118.6, polymer modified grout, color: #93 Warm Grey (submits samples for final selection).

## **2.5 ACCESSORIES**

- A. Membrane: Waterproof and Crack Isolation membrane for Concrete Paver or Porcelain Tile.
  - 1. Manufacturer: Mapei – Mapelastic Aquadefense

## **PART 3 EXECUTION**

### **3.1 EXAMINATION**

- A. Verify that surfaces are clean, cracks repaired, loose and spalled material is removed and holes patched, and surface is ready to receive work.

### **3.2 PREPARATION**

- A. Protect surrounding work from damage or disfiguration.
- B. Vacuum clean surfaces.
- C. Seal substrate surface cracks with filler.
- D. Apply conditioner to substrate surfaces in accordance with adhesive manufacturer's instructions.

### **3.4 INSTALLATION - MORTAR BED METHOD**

- A. Install mortar bed, isolation membrane, tile, and grout in accordance with manufacturer's instructions and to TCA Handbook Method.
- B. Install isolation membrane in accordance with manufacturer's instructions.
- C. Apply mortar setting bed over concrete surfaces to a thickness of 5/8 inch or as required by manufacture's instructions
- D. Lay tile to pattern indicated. Do not interrupt tile pattern through openings.
- E. Cut and fit tile tight to vertical surfaces. Form corners neatly.
- F. Place tile joints uniform in width, subject to variance in tolerance allowed in tile size. Make joints watertight, without voids, cracks, excess mortar or excess grout.
- G. Sound tile after setting. Replace hollow sounding units.
- H. Keep expansion and control joints free of mortar or grout. Apply sealant to joints.
- I. Allow tile to set for a minimum of 48 hours prior to grouting.

- J. Grout tile joints.
- K. Apply sealant to junction of tile and dissimilar materials and junction of dissimilar planes.

**3.5 CLEANING**

- A. Clean tile and grout surfaces.

**3.6 PROTECTION OF FINISHED WORK**

- A. Do not permit traffic over finished floor surface for 4 days after installation.

**END OF SECTION**

## **SECTION 09900 PAINTING**

### **PART 1 GENERAL**

#### **1.1 SECTION INCLUDES**

- A. Exterior paint and coating systems.

#### **1.2 REFERENCES**

- A. SSPC-SP 1 - Solvent Cleaning
- B. SSPC-SP 2 - Hand Tool Cleaning
- C. SSPC-SP 3 - Power Tool Cleaning
- D. SSPC-SP 13 / NACE No. 6 Surface Preparation for Concrete
- E. EPA-Method 24
- F. GS-11, GC-03
- G. LEED-CI USGBC version 2.0

#### **1.3 SUBMITTALS**

- A. Product Data: Manufacturer's data sheets on each paint and coating product should include:
  - 1. Product characteristics
  - 2. Surface preparation instructions and recommendations
  - 3. Primer requirements and finish specification
  - 4. Storage and handling requirements and recommendations
  - 5. Application methods
  - 6. Cautions, VOC's
- B. Selection Samples: Submit a complete set of color chips that represent the full range of manufacturer's color samples available.
- C. Verification Samples: For each finish product specified, submit samples that represent actual product, color, and sheen.

#### **1.4 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery: Deliver manufacturer's unopened containers to the work site. Packaging shall bear the manufacturer's name, label, and the following list of information:
  - 1. Product name, and type (description)
  - 2. Application & use instructions
  - 3. Surface preparation
  - 4. VOC content
  - 5. Environmental issues
  - 6. Batch date
  - 7. Color number/ name
- B. Storage: Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction. Store materials in an area that is within the acceptable temperature range, per manufacturer's instructions. Protect from freezing.

- C. Handling: Maintain a clean, dry storage area, to prevent contamination or damage to the coatings.

**1.5 PROJECT CONDITIONS**

Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not apply coatings under environmental conditions outside manufacturer's absolute limits.

**PART 2 PRODUCTS**

**2.1 MANUFACTURERS**

- A. Acceptable Manufacturer: The Sherwin-Williams Company
- B. Substitutions: Requests for substitutions will be considered. When submitting request for substitution, provide complete product data specified above under Submittals, for each substitute product.

**2.2 APPLICATIONS/SCOPE**

- A. Surfaces To Be Coated; as indicated on drawings and schedules
  - 1. Cement – Concrete columns
  - 2. PVC Trim – Trim and moldings

**2.3 MATERIALS - GENERAL REQUIREMENTS**

- A. Paints and Coatings - General:
  - 1. Unless otherwise indicated, provide factory-mixed coatings. When required, mix coatings to correct consistency in accordance with manufacturer's instructions before application. Do not reduce, thin, or dilute coatings or add materials to coatings unless such a procedure is specifically described in manufacturer's product instructions. VOC numbers need to be confirmed by using the products MSDS sheets.
  - 2. Exterior paints and coatings applied on-site must meet the limitations and restrictions concerning chemical components set by GS-11 standards:
  - 3. The VOC concentrations of the product shall not exceed those listed below as determined by U. S. Environmental Protection Agency (EPA) Reference Test Method 24 (Determination of Volatile Matter Content, Water Content, Density Volume Solids, and Weight Solids of Surface Coatings), Code of Federal Regulations Title 40, Part 60, Appendix A.  
The calculation of VOC shall exclude water and tinting color added at the point of sale.

Exterior Coatings:

<u>Coating Type</u>	<u>VOC weight in grams/liter of product minus water</u>
Non-flat	200
Flat	100

- B. Primers:
  - 1. Where the manufacturer specifies primes, sealers, or block fillers, the VOC limits follow the Flat/Non-Flat, rules per GS-11. 2.1 Paints: Liquid, liquefiable or mastic composition that is converted to a solid protective, decorative, or functional adherent film after application as a



thin layer. These coatings are intended for on-site application to exterior surfaces of residential, commercial, institutional or industrial buildings .....

**2.4 ACCESSORIES:**

- A. Coating Application Accessories:
  - 1 Provide all primers, sealers, cleaning agents, cleaning cloths, sanding materials, and clean-up materials required per manufacturer's specifications.

**PART 3 EXECUTION**

**3.1 EXAMINATION**

- A. Do not begin application of coatings until substrates have been properly prepared. Notify Architect of unsatisfactory conditions before proceeding
- B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.
- C. Proceed with work only after conditions have been corrected, and approved by all parties, otherwise application of coatings will be considered as an acceptance of surface conditions.

**3.2 SURFACE PREPARATION:**

- A. Painting Contractor shall be responsible to carefully remove all loose paint from existing surfaces to receive new paint. Repair minor cracks, holes and imperfections prior to painting.
- B. Proper product selection, surface preparation, and application affect coating performance. Coating integrity and service life will be reduced because of improperly prepared surfaces. Selection and implementation of proper surface preparation ensures coating adhesion to the substrate and prolongs the service life of the coating system.
- C. Selection of the proper method of surface preparation depends on the substrate, the environment, and the expected service life of the coating system. Economics, surface contamination, and the effect on the substrate will also influence the selection of surface preparation methods.
- D. Previously coated surfaces: Glossy paint surfaces must be clean and dull before painting. Thorough washing with an abrasive cleaner may clean and dull in one operation, or wash thoroughly and dull by sanding.
- E. The surface must be dry and in sound condition. Remove oil, dust, dirt, loose rust, peeling paint or other contamination to ensure good adhesion.
- F. Remove mildew before painting by washing with a solution of 1 part liquid household bleach and 3 parts of warm water. Apply the solution and scrub the mildewed area. Allow the solution to remain on the surface for 10 minutes. Rinse thoroughly with clean water and allow the surface to dry 48 hours before painting. Wear protective glasses or goggles, waterproof gloves, and protective clothing. Quickly wash off any of the mixture that comes in contact with your skin. Do not add detergents or ammonia to the bleach/water solution.
- G. No exterior painting should be done immediately after a rain, during foggy weather, when rain is predicted, or when the temperature is below 50°F, unless products are designed specifically for these conditions. On large expanses of metal siding, the air, surface and material temperatures must be 50°F or higher to use low temperature products.
- H. Methods:

1. Concrete, SSPC-SP13 or NACE 6  
This standard gives requirements for surface preparation of concrete by mechanical, chemical, or thermal methods prior to the application of bonded protective coating or lining systems. The requirements of this standard are applicable to all types of cementitious surfaces including cast-in-place concrete floors and walls, precast slabs, masonry walls, and shotcrete surfaces. An acceptable prepared concrete surface should be free of contaminants, laitance, loosely adhering concrete, and dust, and should provide a sound, uniform substrate suitable for the application of protective coating or lining systems.
2. Solvent Cleaning, SSPC-SP1  
Solvent cleaning is a method for removing all visible oil, grease, soil, drawing and cutting compounds, and other soluble contaminants. Solvent cleaning does not remove rust or mill scale. Change rags and cleaning solution frequently so that deposits of oil and grease are not spread over additional areas in the cleaning process. Be sure to allow adequate ventilation.
3. Hand Tool Cleaning, SSPC-SP2  
Hand Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before hand tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
4. Power Tool Cleaning, SSPC-SP3  
Power Tool Cleaning removes all loose mill scale, loose rust, and other detrimental foreign matter. It is not intended that adherent mill scale, rust, and paint be removed by this process. Before power tool cleaning, remove visible oil, grease, soluble welding residues, and salts by the methods outlined in SSPC-SP1.
5. Wood—Exterior  
Must be clean and dry. Prime and paint as soon as possible. Knots and pitch streaks must be scraped, sanded, and spot primed before a full priming coat is applied. Patch all nail holes and imperfections with a wood filler or putty and sand smooth.

**WARNING!** Removal of old paint by sanding, scraping or other means may generate dust or fumes that contain lead. Exposure to lead dust or fumes may cause brain damage or other adverse health effects, especially in children or pregnant women. Controlling exposure to lead or other hazardous substances requires the use of proper protective equipment, such as a properly fitted respirator (NIOSH approved) and proper containment and cleanup. For more information, call the National Lead Information Center at 1-800-424-LEAD (in US) or contact your local health authority.

### 3.3 INSTALLATION

- A. Apply all coatings and materials with manufacturer's specifications in mind. Mix and thin coatings according to manufacturer's recommendation.
- B. Do not apply to wet or damp surfaces.
  - 1 Wait at least 30 days before applying to new concrete or masonry. Or follow manufacturer's procedures to apply appropriate coatings prior to 30 days.
  - 2 Test new concrete for moisture content.
  - 3 Wait until wood is fully dry after rain or morning fog or dew.
- C. Apply coatings using methods recommended by manufacturer.
- D. Uniformly apply coatings without runs, drips, or sags, without brush marks, and with consistent sheen.

- E. Apply coatings at spreading rate required to achieve the manufacturer's recommended dry film thickness.
- F. Regardless of number of coats specified, apply as many coats as necessary for complete hide and uniform appearance.
- G. Exterior Woodwork: If final painting must be delayed more than 2 weeks after installation of woodwork, apply primer within 2 weeks and final coating within 2 weeks.
- H. Inspection: The coated surface must be inspected and approved by the Architect or Engineer just prior to each coat.

### 3.4 PROTECTION

- A. Protect finished coatings from damage until completion of project.
- B. Touch-up damaged coatings after substantial completion, following manufacturer's recommendation for touch up or repair of damaged coatings. Repair any defects that will hinder the performance of the coatings.

### 3.5 EXTERIOR PAINTING SCHEDULES

#### A. Concrete -

- 1. Latex Systems
  - a. Satin Finish
    - 1st Coat: S-W Loxon® Acrylic Primer, A24W300  
(8 mils wet, 3.2 dry)
    - 2nd Coat: S-W A-100® Exterior Latex Satin, A82 Series
    - 3rd Coat: S-W A-100® Exterior Latex Satin, A82 Series  
(4 mils wet, 1.4 mils dry per coat)

#### B. Wood (Trim and Moldings)

- 1. Latex Systems
  - a. Satin Finish
    - 1st Coat: S-W A-100® Exterior Latex Wood Primer, B42W41  
(4 mils wet, 1.4 mils dry)
    - 2nd Coat: S-W A-100® Exterior Latex Satin, A82 Series
    - 3rd Coat: S-W A-100® Exterior Latex Satin, A82 Series  
(4 mils wet, 1.4 mils dry per coat)

#### C. PVC (Trim Boards and Moldings)

- 1. Latex System
  - a. Satin Finish
    - 1<sup>st</sup> Coat: S-W SuperPaint® Exterior Latex Acrylic Satin, VinylSafe, A89 Series.
    - 2nd Coat: S-W SuperPaint® Exterior Latex Acrylic Satin, VinylSafe, A89 Series.

**END OF SECTION**