

INVITATION TO BID

ITB #4284

MACK POOL ROOF REPLACEMENT



Due Date: Tuesday, April 16, 2013 by 2:00 PM

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48104

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ADVERTISEMENT
FOR THE
MACK POOL ROOF REPLACEMENT
CITY OF ANN ARBOR

BID NO. ITB #4284

Sealed Bids will be received by the City of Ann Arbor Procurement Unit, 301 East Huron Street, Fifth Floor, Larcom City Hall, on or before Tuesday, April 16, 2013 by 2:00 PM for the construction of Mack Pool Roof Replacement. Bids will be publically opened and read aloud at this time.

A pre-bid conference will be held Tuesday, April 2, 2013 at 2:00 PM at the Mack Pool located at 920 Miller Avenue, Ann Arbor, Michigan 48103. Attendance is highly recommended.

Base Bid. Work to be done includes removal and replacement of the EPDM roof, insulation and vapor barrier, removal and replacement of damaged metal roof deck panels, refinishing window and door lintels, and all other related work. The Bid Alternate consists of repainting the interior ceiling of the pool room.

Bid documents, specifications, drawings, and addenda shall be downloaded by bidders at either of the following websites: Michigan Inter-governmental Trade Network (MITN) www.mitn.info or City of Ann Arbor Purchasing website: www.A2gov.org. It is the bidder's responsibility to verify they have obtained all information before submitting a bid.

Each Bid 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 Bid, 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After the time of opening, no Bid may be withdrawn for a period of 90 days.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.

Technical questions regarding this project may be submitted in writing to the Consulting Engineer, Stantec Consulting, Attn: Paul Malocha, PE via email at paul.malocha@stantec.com. Questions by telephone call are prohibited. Technical questions directed to the Owner are prohibited. The deadline for questions shall be 5:00 PM on Tuesday, April 9, 2013. Questions will not be received after this date.

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

CITY OF ANN ARBOR PROCUREMENT UNIT

NOTICE OF PRE-BID CONFERENCE

A pre-bid conference for this project will be held on Tuesday, April 2, 2013 at 2:00 PM at the Mack Pool located at 920 Miller Avenue (entrance on Brooks Street), Ann Arbor, Michigan 48103. At the completion of the pre-bid conference, potential bidders will have the opportunity to view the project site.

Attendance at this conference is highly recommended. Administrative and technical questions regarding this project will be answered at this time. The pre-bid conference is for information only. Any answers furnished will not be official until verified in writing by the Financial Service Area, Procurement Unit. Answers that change or substantially clarify the bid will be affirmed in an addendum.

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. Access to the Project Site will be available immediately after the Pre-Bid Meeting.

Any Bid which does not conform fully to these instructions may be rejected.

Preparation of Bids

Bids should be prepared providing a straight-forward, concise description of the Bidder's ability to meet the requirements of the ITB. Bids shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed and dated in ink by the person signing the Bid.

Bids must be submitted on Page Numbers ITB 1-3 and on the "Bid Forms" provided with each blank properly filled in. If forms are not fully completed it may disqualify the bid.

Each person signing the Bid certifies that he/she is the person in the Bidder's firm/organization responsible for the decision as to the fees being offered in the Bid and has not and will not participated in any action contrary to the terms of this provision.

Questions or Clarification on ITB Specifications

All questions regarding this ITB shall be submitted via email. Emailed questions and inquires will be accepted from any and all prospective Bidders in accordance with the terms and conditions of the ITB.

All questions shall be due on or before Tuesday, April 9, 2013, by 5:00 PM and should be addressed as follows:

Specification/Scope of Work questions emailed to paul.malocha@stantec.com
Bid Process and HR Compliance questions emailed to KLancaster@a2gov.org.

Addenda

If it becomes necessary to revise any part of the ITB, notice of the Addendum will be posted to Michigan Inter-governmental Trade Network (MITN) www.mitn.info and/or City of Ann Arbor web site www.A2gov.org for all parties to download.

Each Bidder must in its Bid, to avoid any miscommunications, acknowledge all addenda which it has received, but the failure of a Bidder to receive, or acknowledge receipt of; any addenda shall not relieve the Bidder of the responsibility for complying with the terms thereof.

The City will not be bound by oral responses to inquiries or written responses other than

written addenda.

Bid Submission

All Bids are due and must be delivered to the City of Ann Arbor Procurement Unit on or before Tuesday, April 16, 2013 by 2:00 PM. Bids submitted late or via oral, telephonic, telegraphic, electronic mail or facsimile **will not** be considered or accepted.

Each Bidder must submit one (1) original Bid and two (2) Bid copies in a sealed envelope clearly marked: **ITB #4284 – Mack Pool Roof Replacement.**

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit, 5th Floor
301 East Huron Street
P.O. Box 8647
Ann Arbor, MI 48107

All Bids received on or before the Due Date will be publicly opened and recorded immediately. No immediate decisions are rendered.

Hand delivered bids will be date/time stamped/signed by the Procurement Unit at the address above in order to be considered. Normal business hours are 9:00 a.m. to 3:00 p.m. Monday through Friday. The City will not be liable to any Bidder for any unforeseen circumstances, delivery or postal delays. Postmarking to the Due Date will not substitute for receipt of the Bid. Each Bidder is responsible for submission of their Bid.

Additional time for submission of bids past the stated due date and time will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines in its sole discretion that circumstances warrant it.

Award

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 alternatives 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 unit prices and the lump sum 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 Bids, the City will give consideration to alternate Bids for items listed in the bid forms.

Qualifications

The City will evaluate Proposals based on cost as well as experience. Contractors that have not included the required list of similar work experience, resumes for project manager and superintendent, and associated references in Section 5 of the Bid Form may have their bid rejected.

As part of the proposal, Bidders shall provide documentation that the Bidder's company has at least 10 years of experience performing roof replacement and deck repairs. Bidders shall also submit, for the proposed Project Manager and Superintendent, resumes documenting 7 years of professional experience for each individual in the construction industry as a full-time employee, along with 3 references for each individual from previous projects completed within the past 5 years. Bidders shall also submit the attached form, "Section 5 – References," which identifies a minimum of three projects completed in the past five years at similar facilities including construction cost, contractor and subcontractor information, that demonstrate similar work experience and complexity to that included within these contract documents.

All key staff and subcontractors are subject to the approval by the City.

Official Documents

The City of Ann Arbor shall accept no alternates to the bid documents made by the Bidder unless those alternatives are set forth in the "Alternate" section of Bid form.

The City of Ann Arbor officially distributes bid documents from the Procurement Unit or through the Michigan Intergovernmental Trade Network (MITN). Copies of the bid documents obtained from any other source are not Official copies. Addenda and other bid information will only be posted to these official distribution sites. If you obtained City of Ann Arbor Bid documents from other sources, it is recommended that you register on www.MITN.info and obtain an official Bid.

Bid Security

Each bid 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 90 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-2, 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 should complete and return with its bid completed copies of the Human Rights Division Contract Compliance Forms or an acceptable equivalent. In the event Human Rights forms are not submitted with the bid, the bidder will have 24 hours to provide once requested by the City.

Wage Requirements

Section 4, beginning at page GC-2, 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 provide documentary proof of compliance when requested.

Major Subcontractors

The Bidder shall identify on Bid Form Section 4 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. The Bidder shall not change or replace a subcontractor without approval by the City.

Debarment

Submission of a Bid in response to this ITB is certification that the Bidder is not currently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from participation in this transaction by any State or Federal departments or agency. Submission is also agreement that the City will be notified of any changes in this status.

Disclosures

After bids are opened, all information in a submitter's bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) known as the "Freedom of Information Act." The Freedom of Information Act also provides for the complete disclosure of contracts and attachments thereto except where specifically exempted.

Bid Protest

All Bid protests must be in writing and filed with the Purchasing Agent within five (5) business days of the award action. The bidder must clearly state the reasons for the protest. If a bidder contacts a City Service Area/Unit and indicates a desire to protest an award, the Service Area/Unit shall refer the bidder to the Purchasing Agent. The Purchasing Agent will provide the bidder with the appropriate instructions for filing the protest. The protest shall be reviewed by the City Administrator or designee whose decision shall be final.

Reservation of Rights

The City of Ann Arbor reserves the right to accept any bid or alternative bid proposed in whole or in part, to reject any or all bids or alternatives bids in whole or in part and to waive irregularity and/or informalities in any bid and to make the award in any manner deemed in the best interest of the City.

CONTRACT COMPLIANCE FORMS

City of Ann Arbor Procurement Office INSTRUCTIONS FOR CONTRACTORS

For Completing CONTRACT COMPLIANCE FORM

City Policy

The “non discrimination in contracts” provision of the City Code, (Chapter 112, Section 9:161) requires contractors/bidders/grantees doing business with the City not to discriminate on the basis of actual or perceived race, color, religion, national origin, sex, age, condition of pregnancy, marital status, physical or mental limitations, source of income, family responsibilities, educational association, sexual orientation, gender identity or HIV status against any of their employees, any City employee working with them, or any applicant for employment. It also requires that the contractors/bidders/grantees include a similar provision in all subcontracts that they execute for City work or programs.

This Ordinance further requires that each prospective contractor/bidder submit employment data to the City showing current total employee breakdown by occupation, race and gender. This allows the Human Rights Office to determine whether or not the contractor/bidder has a workforce that is reflective of the availability of women and under-represented minorities within the contractor’s labor recruitment area (the area where they can reasonably be expected to recruit employees). *This data is provided to the City on the Human Rights Contract Compliance Forms (attached).*

To complete the form:

1) **If a company has more than one location, then that company must complete 2 versions of the form.**

- **Form #1** should contain the employment data for the **entire corporation.**
- **Form #2** should contain the employment data for those employees:
 - who will be working on-site;
 - in the office responsible for completing the contract; or,
 - in the case of non-profit grantees, those employees working on the project funded by the City grant(s).

2) If the company has only one location, fill out Form #1 only.

3) Complete all data in the upper section of the form including the name of the person who completes the form and the name of the company/organization’s president.

4) Complete the Employment Data in the remainder of the form. Please be sure to complete all columns including the Total Columns on the far right side of the form, and the Total row and Previous Year Total row at the bottom of the form.

5) Return the completed form(s) to your contact in the City Department for whom you will be conducting the work.

For assistance in completing the form, contact:
Procurement Office of the City of Ann Arbor
(734) 794-6500

If a contractor is determined to be out of compliance, the Procurement Office will work with them to assist them in coming into compliance.

CITY OF ANN ARBOR HUMAN RIGHTS 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	Number of Employees (Report employees in only one category)												TOTAL COLUMNS A-L
	Male						Female						
	White	Black or African American	Asian	Hispanic or Latino	Native Hawaiian or Other Pacific Islander	American Indian or Alaska Native	White	Black or African American	Asian	Hispanic Latino	or Native Hawaiian or Other Pacific Islander	American Indian or Alaskan Native	
A	B	C	D	E	F	G	H	I	J	K	L		
Exec/Sr. Level Officials													
Supervisors													
Professionals													
Technicians													
Sales													
Admin. Support													
Craftspeople													
Operatives													
Service Workers													
Laborers/Helper													
Apprentices													
Other													
TOTAL													
PREVIOUS YEAR TOTAL													

**CITY OF ANN ARBOR HUMAN RIGHTS 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 _____ Name of President _____

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

Fax# _____ Email Address _____
(Area Code)

EMPLOYMENT DATA

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

**ATTACHMENT C
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 \$12.52/hour when health care is provided, or no less than \$13.96/hour for those employers that do *not* provide health care. It is understood that the Living Wage will be adjusted each year on April 30, and covered employers will be required to pay the adjusted amount thereafter. The rates stated above include any adjustment for 2013.
- 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
Phone: 734/794-6500

**CITY OF ANN ARBOR
LIVING WAGE ORDINANCE**

RATE EFFECTIVE APRIL 30, 2013 - ENDING APRIL 29, 2014

\$12.52 per hour

If the employer provides health care benefits*

\$13.96 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.

Violation 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.

* Health Care benefits include 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.

**For Additional Information or to File a Complaint Contact
Karen Lancaster at 734/794-6500 or Klancaster@a2gov.org**

INVITATION TO BID

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, Bid, 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 Bid 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 Bid shall become due and payable to the City.

If the Bidder enters into the Contract in accordance with this Bid, or if this Bid 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 _____, 20__.

Bidder's Name

Authorized Signature of Bidder

Official Address

(Print Name of Signer Above)

Telephone Number

Email Address for Award Notice

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 Bid, 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 Bid: _____
(initial here)

BID FORM
Section 1 – Schedule of Prices

Project: Mack Pool Roof Replacement
ITB No.: 4284

Bidder's Name: _____

Notes:

1. All bidders shall provide a Unit Price and Total Price for all bid items specified.
2. Quantities included in the bid table represent estimated quantities for different work. The CONTRACTOR shall be compensated for the actual number of items completed using the unit prices provided.
3. The City, at its sole discretion, may elect to delete any portion of the work delineated below, with no change to the unit prices provided. Work shall be determined based upon the availability of funds.
4. Any item not provided in the following list shall be considered incidental.
5. Contract shall be awarded based on the base bid or any combination of the base bid and alternate bid areas in any manner the City believes to be in its best interest.
6. Bid Items are described in detail in Section 01000 General Requirements.

Bid Items

The Bidder agrees to complete the Project and all related work, as specified and shown on the drawings, for the following unit prices.

BASE BID					
Item No.	Item Description	Qty	Unit	Unit Price	Total Price
1.	General Conditions, Insurance, Bonds, Mobilization, Lead Paint Testing (Roof Deck)	1	LS	\$	\$
2.	Remove and Replace EPDM Roof System	1	LS	\$	\$
3.	Remove and Replace Metal Roof Decking	2,000	SF	\$	\$
4.	Refinish Window and Door Lintels	1	LS	\$	\$
5.	Install Access Ladder and Guardrails	1	LS	\$	\$
6.	Demobilize and Close Out Project	1	LS	\$	\$
7.	Allowances – Miscellaneous Repairs	1	LS	\$ 10,000	\$ 10,000
TOTAL BASE BID (ITEMS 1 THORUGH 7):					\$

_____ Dollars (\$ _____)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

ALTERNATE BID					
Item No.	Item Description	Qty	Unit	Unit Price	Total Price
1.	Paint Ceiling and Joists	1	LS	\$	\$
2.	Abate Lead Based Paint (Roof Deck Only)	1	LS	\$	\$
TOTAL ALTERNATE BID (ITEMS 1 THROUGH 2):					\$

_____ Dollars (\$_____)

(Amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.)

BID FORM

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>
--------------------	--------------------	--------------------------

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-2, 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>
	Roofing Manufacturer	
	Metal Repairs	
	Painting	
	Other	

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 _____

BID FORM

Section 5 – References

GENERAL CONTRACTOR (Name: _____)

Include a minimum of three references from projects completed within the past ten years for major roof replacement and metal deck repair projects at similar sized facilities. Provide documentation confirming that the firm is a certified installer of the specified roofing system.

1) _____
Project Name Cost Date Constructed

Contact Name Phone Number

2) _____
Project Name Cost Date Constructed

Contact Name Phone Number

3) _____
Project Name Cost Date Constructed

Contact Name Phone Number

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 20__, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 East Huron Street, Ann Arbor, Michigan 48104 (“City”) and _____ (“Contractor”)

(An individual/partnership/corporation, include state of incorporation)

(Address)

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 “Mack Pool Roof Replacement” 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
Living Wage Declaration of
Compliance Forms
(if applicable)
Bid Forms
Contract and Exhibits
Bonds

General Conditions
Standard Specifications
Detailed Specifications
Plans
Addenda

ARTICLE II - Definitions

Administering Service Area/Unit means Public Services Area.

Supervising Professional or Owner means persons acting under the authorization of the Administrator/Manager of the Administering Service Area/Unit.

Engineer or Owner’s Representative means Consulting Professional acting under the authorization of the Supervising Professional/Owner.

Project means, Mack Pool Roof Replacement, Bid No. ITB #4284

ARTICLE III - Time of Completion

- (A) The work to be completed under this Contract shall begin immediately on the date specified in the Notice to Proceed issued by the City.
- (B) The entire work for this Contract shall be completed within nine (9) consecutive weeks. Shorter completion times for certain portions of the work are specified below. Liquidated damages shall also apply to these intermediate milestones.

Primary on-site work (including Base Bid and Alternate Bid items) and demobilization must be completed by August 30, 2013.

Punch list items may be completed after August 30, 2013 at specific times coordinated with the Owner.

- (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 \$500.00 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 or Plans 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 equal to that identified in Specification Section 01140, Table 1 for each portion or Phase 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 bid total of:

_____ Dollars (\$_____)

- (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. Increases or decreases shall be determined only by written agreement between the City and Contractor.

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. The parties stipulate that the venue referenced in this contract is for convenience and waive any claim of non-convenience.

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, 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 _____
Craig Hupy, Public 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 _____, 20__, 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 _____, 20__.

(Name of Surety Company)

By _____
(Signature)

Its _____
(Title of Office)

(Name of Principal)

By _____
(Signature)

Its _____
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

Name and address of agent:

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 _____, 20__, 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 _____, 20__.

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

(Name of Principal)
By _____
(Signature)
Its _____
(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 2 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) Plans; (5) General Conditions; (6) Contract; (7) Bid Forms; (8) Bond Forms; (9) Bid.

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.

Further, to the extent that any employees of the Contractor providing services under this contract are not part of the class of craftsmen, mechanics and laborers who receive a prevailing wage in conformance with Section 1:319 of Chapter 14 of Title I of the Code of the City of Ann Arbor, the Contractor agrees to conform to Chapter 23 of Title I of the Code of the City of Ann Arbor, as amended, which in part states:

1:814. Applicability.

- (1) This Chapter shall apply to any person that is a contractor/bidder 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/bidder 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/bidder 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/bidder or grantee.

1:815. Living Wages Required.

- (1) Every contractor/bidder 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 \$12.17 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 \$13.57 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, 2002, 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 years 2001 and 2002. 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.

Contractor agrees that all subcontracts entered into by the Contractor shall contain similar wage provision covering subcontractor's employees who perform work on this contract.

Section 5 - Non-Discrimination

The Contractor agrees to comply, and to require its subcontractor(s) to comply, with the nondiscrimination provisions of Section 209 of the Elliot-Larsen Civil Rights Act (MCL 37.2209). The Contractor further agrees to comply with the nondiscrimination provisions of Chapter 112 of the Ann Arbor City Code and to assure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity. The Contractor further 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 and the City 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 Service Area/Unit 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.

CONTRACTOR'S DECLARATION

I hereby declare that I have not, during the period _____, 20___, 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 Mack Pool Roof Replacement, 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 Mack Pool Roof Replacement. 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 Date

By _____
(Signature)

Its _____
(Title of Office)

Subscribed and sworn to before me, on this _____ day of _____, 20___
_____, _____ County, Michigan

Notary Public

County, MI
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. Copies of the Standard Specifications can also be downloaded from the web link:

http://www.a2gov.org/government/publicservices/project_management/privatedev/pages/standardspecificationsbook.aspx.

DETAILED SPECIFICATIONS

SECTION 01000

GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Work under this Contract consists of repairs to Mack Pool, and shall include but not be limited to the following: Removal and replacement of the EPDM roof, insulation, vapor barrier, replacing damaged metal roof deck panels, refinishing window and door lintels and all related work.
- B. Contract Drawings are included which give specific locations for all work under this Contract. Drawings and specifications depict or describe the items for painting.
- C. It is the intent of these Contract Documents that the Contractor provides a complete and finished product. Items shown on the Drawings and Specifications not specifically connected to a heading in the Bid Form are to be considered as incidental to the work.

1.2 EXISTING FACILITIES ACCESS

- A. The Contractor shall be responsible for maintaining safe access for the public to the existing facility areas beyond the work zones.
- B. Access to such parts of the facility shall not be temporarily disrupted without coordination with and prior approval of the Owner.
- C. Prior to commencing work, the Contractor shall submit to the Owner a plan for bringing construction traffic to and from the site.

1.3 NOTIFICATION OF UTILITIES

NOT USED

1.4 WORK SCHEDULE

- A. The Contractor shall provide a work schedule. The schedule shall be complete and shall show in detail the manner in which he proposes to complete the work under this Contract and approximate monthly billing of the Contract. The purpose of the schedule is to assist the Owner in notifying the public of inconveniences and to anticipate cash-flow on the job, and to determine if the Contractor is reasonably proceeding with the work to assure completion within the specified time.
- B. Work hours shall be restricted to Monday through Friday, 7AM to 7PM. Work shall not be conducted on City holidays. Exceptions to work hour limits shall be only by written permission of the Owner.

1.5 CONSTRUCTION SEQUENCE

- A. The Contractor shall coordinate and schedule his work with the Owner when his operation may affect access to existing facilities.

1. The Contractor shall coordinate his operations with the school. The Contractor's operations shall not interfere with operations including public passage or other activities.
- B. Prior to commencing the work, the Contractor shall provide the Engineer a detailed schedule of the proposed work. The schedule shall include a list of tasks required to complete the work; their relevancy to each other; expected duration; and completion dates.
- C. The Contractor is responsible for presenting a sequence with schedule to the Owner/Engineer for review. All proposed improvements shall be constructed only in accordance with an approved schedule.

1.6 TRAFFIC MAINTENANCE

- A. (See Section 01140, 1.3, A)
- B. In the event of the Contractor's failure to comply with these provisions, the Owner may with or without notice, cause the same to be done; and will deduct the cost of such work from any money due or to become due the Contractor under this Contract, but the performance of such work by the Owner or at the Owner's insistence, shall serve in no way to release the Contractor from their general or particular liability for the safety of the Public or the work.
- C. Access to fire hydrants and water valves shall always be maintained. The Contractor's truck and equipment operations on public streets shall be governed by City or County regulations as applicable, and all other local traffic ordinances, and regulations of the Fire and Police Departments.
- D. Payment for traffic maintenance, the furnishing of flaggers, barricades, signs, flashers and maintenance of these shall be incidental to the Contract.

1.7 CONSTRUCTION PERMITS

- A. (See Section 01010, 1.4)

1.8 MATERIAL TESTING

- A. The Contractor shall provide and pay for the service of an independent testing laboratory, approved by the Engineer, to provide all lead painting testing for the steel roof deck material after it has been exposed.
- B. The Contractor shall be responsible for all paint testing. Testing shall include DFT, surface preparation, environmental conditions, etc. Copies of all test reports shall be provided to the Engineer and to the Owner.

1.9 DUST CONTROL

- A. All demolition activities shall be monitored by the Contractor to assure that the area around the immediate construction site is maintained in a dust free condition during the life of this Contract. The control of the dust shall be accomplished by the application of dust control materials and methods of application as approved and as directed by the Engineer. Such dust control materials shall be applied as often as is necessary to control the dust.
- B. Cost of providing dust control shall be incidental to the project.

- C. Should the Contractor be negligent in providing dust control, the Owner may, with or without notice, cause the same to be done and deduct the cost of such work from any monies due or to become due the Contractor under this Contract, but the performance of such work by the Owner, or by the Owner's direction, shall service in no way to release the Contractor from liability for dust control.

1.10 DIGITAL PHOTOGRAPHIC RECORD

NOT USED

1.11 PROJECT PROGRESS MEETING

- A. It shall be the responsibility of the Contractor to have a representative, including key subcontractors, present at each meeting. The Contractor shall be available for meetings which shall be held at least twice a month as necessary.

1.12 METHOD OF MEASUREMENT AND BASIS OF PAYMENT

A. GENERAL

The method of measurement and the basis of payment for each item in the Proposal will be as specified in the schedule attached. The items are generally grouped by the section of the Specifications under which the particular unit of work is detailed. There will be no payment allowed for any unit of work not specifically mentioned in the Proposal as a bid item, and any such unit of work not mentioned in the Proposal, but necessary for the completion of the Project, will be considered as incidental to the construction of the Project.

B. MEASUREMENT

Quantities of work completed under the Contract will be measured by the Engineer according to the United States standard measures. When tons are specified, the unit shall be the ton of 2000 pounds. When measurements are stated in miles, stations, acres, they will be horizontal measurements unless specified otherwise. Where measurements are specified to be "in place," they will be taken along the actual surface of the completed item to obtain lineal, area, or volume measurements.

C. PAYMENT

In each and every instance in the following Measurement and Payment Schedule, where a Basis of Payment is specified, it shall be understood to be prefaced by the following statement, "**The contract unit price bid in the Proposal will be payment in full for all labor, materials, and equipment necessary to do the following according to the Plans and Specifications.**" Payment shall be made on the basis of the actual quantity of the item completed and accepted at the unit price for such item named in the Proposal.

BID ITEMS – BASE BID

<u>ITEM IN PROPOSAL</u>	<u>METHOD OF MEASUREMENT</u>	<u>BASIS OF PAYMENT</u>
General Conditions, Insurance, Bonds Mobilization, Lead Paint Testing (Roof Deck)	By the unit lump sum (LS)	The complete cost of insurance, bonds, permits and mobilization for the project and other requirements of General Conditions. Includes offices, stores, conveniences, and other temporary facilities, site preparation, and whatever means the CONTRACTOR deems necessary for accessing the work, organizing the project, coordination with OWNER, ENGINEER, third parties and sub-contractors, obtaining all permits, permit inspection fees, permit requirements, Shop Drawings, paperwork, bringing equipment to the site as required, management of job, lead paint testing for the existing roof deck material, and all related work. Any costs assumed to be above and beyond the value of this pay item shall be incidental to other pay items in the Contract. The maximum amount of this item shall be 5% of the total project cost.
Remove and Replace EPDM Roof System	By the unit lump sum (LS)	Demolition and removal from the site the existing roof membrane, insulation, vapor barrier, parapet coping and expansion joint, and all other items shown on the Drawings not indicated elsewhere; installation of complete new roof system and all components including insulation, cover board, vapor barrier, crickets, membrane, copings and all related work. Replacement of accessories. Includes painting of top of entire deck prior to installation of new roof.
Remove and Replace Metal Roof Decking	By the square foot (SF)	Remove deteriorated and install new roof deck panels on existing steel ceiling trusses. Includes painting of new panels on bottom, and surface preparation and fastening of panels.
Refinish Window and Door Lintels	By the unit lump sum (LS)	Removal, storage, and reinstallation of indicated doors and window and frames, lintel surface preparation and repainting, reinstallation of windows and doors, and all related work.

MACK POOL ROOF REPLACEMENT

<u>ITEM IN PROPOSAL</u>	<u>METHOD OF MEASUREMENT</u>	<u>BASIS OF PAYMENT</u>
Install Access Ladder and Guardrails	By the unit lump sum (LS)	Removal of existing access ladder and installation of a new ladder with top guardrail, and railings, and all related work.
Demobilize and Closeout Project	By the unit lump sum (LS)	Removal of equipment from the site, Cleanup and return of all OWNER facilities to full use.
Allowances – Miscellaneous Repairs	By the unit lump sum (LS)	Funding for acquirement of miscellaneous repairs as determined necessary by the OWNER. This excludes work called out under other Bid Items.

BID ITEM – ALTERNATE

Paint Ceiling and Joists	By the unit lump sum (LS)	Dust control, surface preparation, new coatings, testing, cleanup, and all related work.
Abate Lead Based Paint (Roof Deck Only)	By the unit lump sum (LS)	If encountered, remove or sequester lead paint by means and methods that comply with EPA and any applicable State or Local regulations. Work shall be performed by persons licensed for such work.

END OF SECTION

SECTION 01010

SUMMARY OF WORK

PART 1 – GENERAL

1.1 SUMMARY OF WORK

- A. Work under this contract consists of removing and replacing the EPDM roof, insulation, vapor barrier, replacing damaged metal roof deck panels, refinishing window lintels at the City of Ann Arbor's Mack Pool and related work.
- B. If the Bid Alternate is selected, repainting of the entire pool room ceiling will be included with the work.
- C. The foregoing description(s) shall not be construed as a complete description of all work required.

1.2 CONTRACT DOCUMENTS

- A. The Work to be done is shown on the set of Drawings entitled Mack Pool Roof Replacement. The numbers and titles of all Drawings appear on the cover sheet of the Drawings. All drawings so enumerated shall be considered an integral part of the Contract Documents as defined herein.
- B. Certain Document Sections refer to Divisions of the Contract Specifications. Sections are each individually numbered portions of the Specifications (numerically) such as 08110, 13182, 15206, etc. The term Division is used as a convenience term meaning all Sections within a numerical grouping. Division 16 would thus include Sections 16000 through 16955.
- C. Where references in the Contract Documents are made to Contractors for specific disciplines of work (e.g. Electrical Contractor, etc.), these references shall be interpreted to be the single prime Contractor when the project is bid or awarded as a single prime contract.
- D. The prime Contractor shall be responsible for all work in the Contract Documents regardless of the division of disciplines.
- E. The Contractor shall be responsible for the production of his construction sets.

1.3 GENERAL ARRANGEMENT

- A. Drawings indicate the extent and general arrangement of the work. If any departures from the Drawings are deemed necessary by the Contractor to accommodate the materials and equipment Contractor proposes to furnish, details of such departures and reasons therefore shall be submitted as soon as practicable to the Engineer for approval by Owner and Engineer. No such departures shall be made without the prior written approval of the Owner or Engineer. Approved changes shall be made without additional cost to the Owner for this work or related work under other Contracts of the Project.
- B. The specific equipment proposed for use by the Contractor on the project may require changes in structures, auxiliary equipment, piping, electrical, mechanical, controls or other work to provide a complete satisfactory operating installation. The Contractor shall submit to the Engineer, for approval by Owner and Engineer, all necessary Drawings and details showing such changes to verify conformance with the overall project structural

and architectural requirements and overall project operating performance. The Bid Price shall include all costs in connection with the preparation of new drawings and details and all changes to construction work to accommodate the proposed equipment, including increases in the costs of other Contracts.

1.4 CONSTRUCTION PERMITS, EASEMENTS AND ENCROACHMENTS

- A. The Owner shall obtain or cause to be obtained all permanent and temporary construction easements required. No easements are anticipated for this project.
- B. The Contractor shall apply for, obtain, keep current and pay all fees for any other necessary construction permits from those authorities, agencies, or municipalities having jurisdiction over land areas, utilities, or structures which are located within the Contract limits and which will be occupied, encountered, used, or temporarily interrupted by the Contractor's operations unless otherwise stated. Contractor shall pay plan review fees and any other fees for required permits. Record copies of all permits shall be furnished to the Engineer and Owner.
- C. When construction permits are accompanied by regulations or requirements issued by a particular authority, agency or municipality, it shall be the Contractor's responsibility to become familiar with and comply with such regulations or requirements as they apply to Contractor's operations on this Project.
- D. The Contractor will be required to follow the requirements established by all permits necessary for the construction of this project. The following is a list of all permits that must be obtained prior to the beginning of construction.
 - 1. Applicable City Building Permits (all trades).
- E. The permits for the various trades shall be applied for and paid for by the Contractor. The Contractor must submit a copy of these permits to the Engineer prior to construction.

1.5 ADDITIONAL ENGINEERING SERVICES

- A. In the event that the Engineer is required to provide additional engineering services as a result of substitution of materials or equipment which are not "or equal" by the Contractor, or changes by the Contractor in dimension, weight, power requirements, etc., of the equipment and accessories furnished, or if the Engineer is required to examine and evaluate any changes proposed by the Contractor for the convenience of the Contractor, then the Engineer's charges in connection with such additional services shall be charged to the Contractor by the Owner.
- B. In the event that the Engineer is required to provide additional engineering services as a result of Contractor's errors, omissions, or failure to conform to the requirements of the Contract Documents, or if the Engineer is required to examine and evaluate any changes proposed by the Contractor solely for the convenience of the Contractor, then the Engineer's charges in connection with such additional services shall be charged to the Contractor by the Owner.

1.6 ADDITIONAL OWNER'S EXPENSES

- A. In the event the Work of this Contract is not completed within the time set forth in the Contract or within the time to which such completion may have been extended in accordance with the Contract Documents, the additional engineering or inspection charges incurred by the Owner may be charged to the Contractor and deducted from the monies due the Contractor. Extra work or supplemental Contract work added to the

original Contract, as well as extenuating circumstances beyond the control of the Contractor, will be given due consideration by the Owner before assessing engineering and inspection charges against the Contractor.

- B. Charges assessed to the Contractor for additional engineering and inspection costs will be determined based on actual hours charged to the job by the Engineer. Daily rates will depend on the number and classifications of employees involved, but in no case shall such charges exceed \$900 per day for field personnel and \$1,100 per day for engineering personnel, based on an eight hour workday.
- C. Charges for additional Owner's expenses shall be in addition to any liquidated damages assessed in accordance with the Contract.

1.7 PROTECTION OF WORK

- A. Unless otherwise specifically permitted, all work that would be subject to damage shall be stopped during inclement, stormy or freezing weather. Only such work as will not suffer injury to workmanship or materials will be permitted. Contractor shall carefully protect the work against damage or injury from the weather, and when work is permitted during freezing weather, Contractor shall provide and maintain approved facilities for heating the materials and for protecting the finished work.

1.8 FIRE PROTECTION

- A. Contractor shall take all necessary precautions to prevent fires at or adjacent to the work, buildings, etc., and shall provide adequate facilities for extinguishing fires which do occur. Burning of debris is not permitted on the project site.
- B. When fire or explosion hazards are created in the vicinity of the work as a result of the locations of fuel tanks, or similar hazardous utilities or devices, the Contractor shall immediately alert the local Fire Marshal, the Engineer, and the Owner of such tank or device. The Contractor shall exercise all safety precautions and shall comply with all instructions issued by the Fire Marshal and shall cooperate with the Owner of the tank or device to prevent the occurrence of fire or explosion.
- C. Fire protection alarm and detection systems shall comply with the Michigan International Building Code 2009 and NFPA standards.
- D. Hydrants must be maintained in service and operational during all phases of work.
- E. Storage area for construction materials must not interfere with fire/emergency site access.
- F. All material demolished from site should not be stored on location.

1.9 CHEMICALS

- A. All chemicals used during project construction or furnished for project operation, whether herbicide, pesticide, disinfectant, polymer, or reactant of other classification, must show approval of either the EPA or USDA. Use of all such chemicals and disposal of residues shall be in strict conformance with all applicable rules and regulations.
- B. Provide Owner with material safety data sheets (MSDS) for all chemicals.

1.10 FIRST AID FACILITIES AND ACCIDENTS

- A. First Aid Facilities
 - 1. The Contractor shall provide at the site such equipment and facilities as are necessary to supply first aid to any of Contractor's personnel who may be injured in connection with the work.
- B. Accidents
 - 1. The Contractor shall promptly report, in writing, to the Engineer and Owner all accidents whatsoever out of, or in connection with, the performance of the work, whether on or adjacent to the site, which cause death, personal injury or property damage, giving full details and statements of witnesses.
 - 2. If death, serious injuries, or serious damages are caused, the accident shall be reported immediately by telephone or messenger to both the Owner and the Engineer.
 - 3. If any claim is made by anyone against the Contractor or a Subcontractor on account of any accidents, the Contractor shall promptly report the facts, in writing, to the Engineer and Owner, giving full details of the claim.

1.11 ULTIMATE DISPOSITION OF CLAIMS BY ONE CONTRACTOR ARISING FROM ALLEGED DAMAGE BY ANOTHER CONTRACTOR

- A. During the progress of the work, other Contractors may be engaged in performing other work or may be awarded other Contracts for additional work on this project and/or on this site. In that event, the Contractor shall coordinate the work to be done hereunder with the work of such other Contractors and the Contractor shall fully cooperate with such other Contractors and carefully fit its own work to that provided under other Contracts as may be directed by the Owner. The Contractor shall not commit or permit any act which will interfere with the performance of work by any other Contractor.
- B. If the Owner shall determine that the Contractor is failing to coordinate this work with the work of the other Contractors as the Owner directed, then the Owner shall have the right to withhold any payments otherwise due hereunder until the Contractor completely complies with the Owner's directions.
- C. If the Contractor notifies the Owner in writing that another Contractor is failing to coordinate his work with the work of this Contract as directed, the Owner will promptly investigate the charge. If the Owner finds it to be true, he will promptly issue such directions to the other Contractor with respect thereto as the situation may require. The Owner, the Engineer, nor any of their agents shall not, however, be liable for any damages suffered by the Contractor by reason of the other Contractor's failure to promptly comply with the directions so issued by the Owner, or by reason of another Contractor's default in performance, it being understood that the Owner does not guarantee the responsibility or continued efficiency of any Contractor.
- D. The Contractor shall indemnify and hold the Owner and the Engineer harmless from any and all claims of judgments for damages and from costs and expenses to which the Owner may be subjected or which it may suffer or incur by reason of the Contractor's failure to comply with the Owner's directions promptly.
- E. Should the Contractor sustain any damage through any act or omission of any other Contractor having a Contract with the Owner for the performance of work upon the site or

of work which may be necessary to be performed for the proper execution of the work to be performed hereunder, or through any act or omission of a Subcontractor of such Contract, the Contractor shall have no claim against the Owner or the Engineer for such damage, but shall have a right to recover such damage from the other Contractor.

- F. Should any other Contractor having or who shall hereafter have a Contract with the Owner for the performance of work upon the site sustain any damage through any act or omission of the Contractor hereunder or through any act or omission of any Subcontractor of the Contractor, the Contractor agrees to reimburse such other Contractor for all such damages and to defend at his own expense any suit based upon such claim and if any judgment or claims against the Owner shall be allowed, the Contractor shall pay or satisfy such judgment or claim and pay all costs and expenses in connection therewith and shall indemnify and hold the Owner harmless from all such claims.
- G. The Owner's right to indemnification hereunder shall in no way be diminished, waived or discharged, by its recourse to assessment of liquidated damages as provided in the Contract, or by the exercise of any other remedy provided for by Contract Documents or by law.

1.12 LIMITS OF WORK AREA

- A. The Contractor shall confine the construction operations within the Contract limits shown on the Drawings and/or property lines and/or fence lines. Storage of equipment and materials, or erection and use of sheds outside of the Contract limits, if such areas are the property of the Owner, shall be used only with the Owner's approval. Such storage or temporary structures, even within the Contract's limits, shall be confined to the Owner's property and shall not be placed on properties designated as easements or rights-of-way unless specifically permitted elsewhere in the Contract Documents.

1.13 WEATHER CONDITIONS

- A. No work shall be done when the weather is unsuitable. The Contractor shall take necessary precautions (in the event of impending storms) to protect all work, materials, or equipment from damage or deterioration due to floods, driving rain, or wind, and snow storms. The Owner reserves the right to order that additional protection measures over and beyond those proposed by the Contractor, be taken to safeguard all components of the Project. The Contractor shall not claim any compensation for such precautionary measures so ordered, nor claim any compensation from the Owner for damage to the work from weather elements.

1.14 USE OF FACILITIES BEFORE COMPLETION

- A. The Owner reserves the right to enter and use any portion of the constructed facilities before final completion of the whole work to be done under this Contract. However, only those portions of the facilities which have been completed to the Owner's satisfaction, as evidenced by issuing a Certificate of Partial Completion covering that part of the work, shall be placed in service.
- B. It shall be the Owner's responsibility to prevent premature connections to or use of any portion of the installed facilities by private or public parties, persons or groups of persons, before the Owner issues the Certificate of Partial Completion covering that portion of the work to be placed in service.

- C. Consistent with the approved progress schedule, the Contractor shall cooperate with the Owner, his agents, and the Engineer to accelerate completion of those facilities, or portions thereof, which have been designated for early use by the Owner.

1.15 DELIVERY, STORAGE, AND HANDLING

- A. All materials, supplies and equipment, whether furnished by the Contractor or by the Owner, shall be delivered, stored and handled as to prevent the inclusion of foreign materials and/or damage by water, freezing, breakage or other causes. The Engineer may require the Contractor to provide an enclosed storage shed for the storage of the above mentioned materials, supplies and equipment. Packaged materials shall be delivered in the original unopened containers and shall be stored until ready for use. All materials which have been stored shall meet the requirements of the Specifications at the time they are used in the project.

1.16 PROTECTION OF TREES

- A. All trees which are to be preserved and which, in the opinion of the Engineer, might be subject to damage by the Contractor's operations, shall be adequately protected against damage to the bark by 2-inch thick vertical planking securely wired or tied completely around the tree trunk. Such protection shall not be removed until authorized by the Engineer.
- B. Trees which interfere with the work, and the removal of which is permitted, shall be removed by the Contractor at his expense and in a safe manner. Such tree removal shall be considered incidental to the work. No trees are to be removed without the expressed approval of the governmental body having jurisdiction thereof, and of the Engineer.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION

SECTION 01140

WORK RESTRICTIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. The proposed roof replacement and window lintel refinishing is intended to be completed during summer months when the pool facility is closed for the season and is essentially unoccupied. The Contractor shall complete the contract work within the time period indicated in the contract documents such that facility operations can commence on the scheduled date.
- B. The Contractor has the option of providing temporary facilities that can eliminate a constraint, provided it is done without cost to the Owner and provided that all requirements of these Specifications are fulfilled. Work not specifically covered in the following paragraphs may, in general, be done at any time during the contract period, subject to the operating requirements and constraints, and construction requirements outlined hereinafter. All references to days in this Section shall be consecutive calendar days.

1.2 GENERAL CONSTRAINTS

- A. The Contractor shall schedule the Work so that pedestrian and passenger, delivery, service and emergency vehicle access is maintained to the adjoining buildings such that normal facility operations can continue during the construction period except during approved process interruptions.
- B. After any damage to the existing facilities by the Contractor's Work that, in the opinion of the Owner, constitutes an emergency, the Contractor shall be immediately available and provide immediate services for the repair of damage and mitigation of the emergency.

1.3 GENERAL REQUIREMENTS

- A. Access to Facility Building and Parking Areas
 - 1. An unobstructed traffic route shall be maintained at all times for the Owner's operations personnel and maintenance equipment and persons involved in facility programs to parking areas.
- B. Materials and Equipment Deliveries
 - 1. An unobstructed traffic route shall be maintained at all times for the Owner's operations personnel, maintenance equipment, and delivery vehicles.

1.4 SPECIFIC OPERATIONAL CONSTRAINTS

- A. The General Contractor shall take all necessary measures (tarps, chutes, sheathing, etc.) to protect the exterior building masonry, doors and windows, as well as vehicles from marking or damage due to roof debris being deposited in the dumpsters during the demolition process or other operations. Paved surfaces shall be kept clear of debris, nails, etc. that may puncture vehicle tires.

END OF SECTION

SECTION 01210

ALLOWANCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Cash Allowances

1.2 DEFINITIONS

- A. Cash Allowance: A monetary sum that includes, as part of the contract price, the associated costs and requirements to complete the specified allowance.

1.3 SUBMITTALS

- A. Submit detailed invoices to indicate the work performed or delivery slips to indicate actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.4 OWNER'S INSTRUCTIONS

- A. At the earliest feasible date after contract award the Contractor shall notify all utility companies and begin coordination efforts in order to avoid delay in performance of the work.
- B. Use allowances only as directed for Owner's purposes, and only by Change Orders which designate amounts to be charged to the allowance.
- C. If the actual price for the specified allowance is more or less than the stated allowance, the contract price shall be adjusted accordingly by Change Order. The adjustment in contract price shall be made in accordance with the General Conditions.
- D. At project closeout, any amounts remaining in allowances will be credited to Owner by Change Order.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 PREPARATION

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

3.2 CASH ALLOWANCE FOR MISCELLANEOUS REPAIRS AND PERMITS

- A. A cash allowance of \$10,000 shall be included in the contract price for miscellaneous repairs and permits as directed by the City. All administrative work and coordination between the Contractor and City shall be considered incidental to the Contract.

END OF SECTION

SECTION 01330

SUMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Submittal Procedures
- B. Certifications
- C. Shop Drawings
- D. Product Data
- E. Samples
- F. Manufacturers' Instructions
- G. Manufacturers' Field Reports
- H. Construction Schedule
- I. Submittal Schedule

1.2 SUBMITTAL PROCEDURES

- A. Package each submittal appropriately for shipping and handling. This shall include an index either on the transmittal or within the submittal itself. Transmit each submittal from Contractor to Engineer using a transmittal form. Submittals received from sources other than Contractor will be returned without action. Use separate transmittals for items from different specification sections. Number each submittal consecutively. Resubmittals should have the same number as the original, plus a letter designation for each Resubmittal (i.e. 7-A, 7-B, etc.)
- B. Indicate on the transmittal relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including minor variations and limitations. Include Contractor's certification that information complies with Contract Document requirements. On Resubmittal, all changes shall be clearly identified for ease of review. Resubmittals shall be reviewed for the clearly identified changes only. Any changes not clearly identified will not be reviewed and original submittal shall govern.
- C. Include the following information on the label for processing and recording action taken.
 - 1. Project name.
 - 2. Date.
 - 3. Name and address of Engineer.
 - 4. Name and address of Contractor.

5. Name and address of subcontractor.
 6. Name and address of supplier.
 7. Name of manufacturer.
 8. Number and title of appropriate specification sections.
 9. Drawing number and detail references, as appropriate.
- D. Schedule submittals to expedite the Project, and deliver to Engineer at business address. Coordinate submission of related items. Coordinate related activities that require sequential activity.
 - F. Review and approve shop drawings, project data, and samples before submitting them.
 - G. Verify field measurements, field construction criteria, catalog numbers, and similar data. Indicate on the submission exactly what was verified.
 - H. Any markings done by Contractor shall be done in a color other than red. Red is reserved for Engineer's marking.
 - I. The number of copies to be submitted will be determined at the pre-construction conference. Reproducible may be submitted and will be marked and returned to Contractor. Blue or black line prints shall be submitted in sufficient quantity for distribution to Engineer and Owner recipients.
 - J. Coordinate each submittal with the requirements of the Contract Documents.
 - K. Provide space for Contractor and Engineer review stamps.
 - L. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and Contract Documents.
 - M. Submit the number of copies that the Contractor requires, plus four copies that will be retained by the Owner and Engineer.
 - N. Identify variations from Contract Documents and Product or system limitations that may be detrimental to successful performance of the completed Work.
 - O. No claim will be allowed for damages or extension of time because of delays in the work resulting from rejection of material or from revision and resubmittal of shop drawings, project data, or samples.
 - P. No extension of contract time will be authorized because of failure to transmit submittals to Engineer sufficiently in advance of the work to permit processing.
 - Q. Engineer reserves the right to withhold action on a submittal required coordination with other submittals until related submittals are received.
 - R. Do not install materials or equipment which requires submittals until the submittals are returned with Engineer's/Owner's stamp and initials or signature indicating approval. The Owner shall have final approval authority.

- S. Contractor's responsibility of errors, omissions, and deviations from requirements of Contract Documents in submittals is not relieved by the Engineer's review.
- T. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with requirements.
- U. Do not use Shop Drawings without an appropriate final stamp indicating action taken in connection with construction.
- V. Submittals not requested in conformance with this Specification will not be recognized or processed.
- W. Revise and resubmit as required, identify all changes made since the previous submittal.
- X. In the event that more than two re-submittals of any submittal is necessary to achieve conformance to the contract requirements, Contractor shall be charged for excess engineering. The Owner shall deduct these charges from the Contractor's final payment. Charges will be \$115.00/hr. minimum 4 hours, for each additional submittal of an item. A tabulated record of such charges will be provided for the Contractor's review prior to the processing of the final payment.
- Y. Submit new project data and samples when the initial submittal is returned disapproved.

1.3 CERTIFICATIONS

- A. When specified in individual specification sections, submit certification by the manufacturer, installation/application subcontractor, or the Contractor to Engineer, in quantities specified for Product Data.
- B. Indicate that the material or Product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certifications may be recent or previous test results of the material or product, but must be acceptable to Engineer.

1.4 SHOP DRAWINGS

- A. Shop Drawings: Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with Paragraph 1.2 - Submittal Procedures.
- B. Submit newly prepared information, drawn to accurate scale. Highlight, encircle, or otherwise indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings.
- C. Standard manufactured items in the form of catalog work sheets showing illustrated cuts of the items to be furnished, scale details, sizes, dimensions, quantity, and all other pertinent information should be submitted and approved in a similar manner.
- D. Measurements given on shop drawings or standard catalog sheets, as established from Contract drawings and as approved by Engineer, shall be followed. When it is necessary to verify field measurements, they shall be checked and established by Contractor. The field measurements so established shall be followed by Contractor and by all affected trades.

1.5 PRODUCT DATA

- A. Product Data: Submit to Engineer for review for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. Produce copies and distribute in accordance with Paragraph 1.2 - Submittal Procedures.
- B. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

1.6 SAMPLES

- A. Submit full-size, fully fabricated samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers or materials, color range sets, and swatches showing color, texture, and pattern.
- B. Mount, display, or package samples in the manner specified to facilitate review of qualities indicated. Prepare samples to match Engineer's sample. Include the following:
 - 1. Generic description of the sample.
 - 2. Sample source.
 - 3. Product name or name of manufacturer.
 - 4. Compliance with recognized standards.
 - 5. Availability and delivery time.
- C. Submit samples for review of kind, color, pattern, and texture, for a final check of these characteristics with other elements, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
- E. Preliminary Submittals: Where samples are for selection of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
 - 1. Preliminary Submittals will be reviewed and returned with Engineer's mark indicating selection and other action.
- H. Unless noncompliance with Contract Document provisions is observed the submittal may serve as the final submittal.
- I. Sample sets may be used to obtain final acceptance of the construction associated with each set.

1.7 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification sections, submit printed instructions for care and maintenance of installed products, to Engineer for delivery to Owner in quantities specified for Product Data.

1.9 CONSTRUCTION SCHEDULE

- A. Contractor shall submit a schedule of construction activities at the pre-construction meeting to the Owner and Engineer for their review and approval
- B. Schedule Updating: Provide an updated construction schedule at each progress meeting. Copies of the updated schedule shall be prepared for all attendees.

1.10 SUBMITTAL SCHEDULE

NOT USED

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 ENGINEER'S ACTION

- A. Except for submittals for record, information or similar purposes, where action and return is required or requested, Engineer will review each submittal, mark to indicate action taken, and return promptly.
 - 1. Compliance with specified characteristics is Contractor's responsibility.
- B. Action Stamp: Engineer will stamp each submittal with a uniform, self-explanatory action stamp. The stamp will be appropriately marked, as follows, to indicate the action taken:
 - 1. Final Unrestricted Release: Where submittals are marked "No Exceptions Taken" that part of the work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents; final acceptance will depend upon the compliance.
 - 2. Final-But-Restricted Release: When submittals are marked "Make Corrections Noted" that part of the work covered by the submittal may proceed, provided it complies with notation or correction on the submittal and requirements of the Contract Documents; final acceptance will depend on that compliance.
 - 3. Returned for Resubmittal: When submittal is marked "Rejected" or "Revise and Resubmit" do not proceed with the part of the work covered by the submittal, including purchasing, fabrication, delivery, or other activity. Revise or prepare a new submittal in accordance with the notations; resubmit without delay. Repeat if necessary to obtain a different action mark.
 - a. Do not permit submittals marked "Rejected" or "Revise and Resubmit" to be used at site, or elsewhere where work is in progress.
 - 4. Additional Information Needed: When submittal is marked "Submit Specified Item" Contractor shall submit requested information.

5. Other Action: Where a submittal is primarily for information or record purposes, special processing or other activity, the submittal will be returned, marked "Acknowledge Receipt".
6. The approval of Engineer shall not relieve Contractor of responsibility for errors on drawings or submittals as Engineer's checking is intended to cover compliance with drawings and specifications and not enter into every detail of the shop work.

END OF SECTION

SECTION 01370

LEAD BASED PAINT REMOVAL

PART 1 - GENERAL

1.1 SCOPE OF WORK

- A. The scope of work for this project covers the supplying of all labor, tools, materials, equipment, services and appurtenances to accomplish the work described below and shown on the Drawings. The work shall be performed to the complete satisfaction of the Owner or the Engineer, in accordance with the current EPA and OSHA regulations, State Labor and Industry and Department of Environmental Resources regulations (if applicable) and any other applicable state and local government.
- B. Work under this project includes but is not limited to the following:
 - 1. Demolition and removal of the lead-based paint materials including the following:
 - a. Window lintels.
 - b. Ceiling and walls.
 - c. All items to be demolished or modified in the pool room including piping, supports, insulation, other ancillary and related items.
 - d. All items to be demolished, modified or replaced on the roof including coping, flashing, access ladder, other ancillary and related items.
 - 2. The Contractor will be responsible for the abatement and demolition of any lead-based paint materials and any other painted surfaces in the locations identified above to the extent needed to properly remove and dispose of the items.
 - 3. The Contractor will be responsible for the abatement of any other lead-based paint that is disturbed as part of any demolition work or new work included in this project.
 - 4. The Contractor will be responsible for the removal, storage, transportation, and disposal of all lead-based paint and hazardous materials generated by this work.
 - 5. Coordination of all lead-based paint abatement work with the Owner and the Contractor.

1.2 CONTROL OF WORK

- A. All work which does not conform to the requirements of this Section will be considered unacceptable.
- B. Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner.
- C. If the Owner or Engineer finds the materials furnished or the work performed has resulted in an unacceptable finished product the affected work or material shall be removed and replaced or otherwise corrected by and at the expense of the Contractor.

1.3 STIPULATIONS

- A. For bidding and project execution purposes, it shall be assumed that all existing surfaces in the locations identified in paragraph 1.01.B.1 are coated with lead based paint (LBP).
- B. The procedures specified in this section are guidelines for minimum performance. The Contractor is responsible for his own methods of operations and conformance to regulatory codes, rules and guidelines. The Contractor is required to obtain all permits, licenses and approvals (if required) to perform the work, including any rights to use patented systems.

1.4 QUALITY ASSURANCE

- A. Compliance with Standards and Regulations
 - 1. The Contractor is solely responsible for compliance with all Federal, State, and Local laws and regulations and all Industry Standard practices associated with the abatement, demolition, storage, transport, and disposal of Hazardous Wastes, as well as all general conditions, special conditions, and all other sections within the contract document.
 - 2. Contractor shall demonstrate to the satisfaction of the Owner or Engineer that the project was completed in accordance with this Section and any applicable EPA and MDEQ standards and regulations.
- B. Worker Requirements
 - 1. The Contractor shall furnish proof that each employee has had previous instruction on the hazards of lead exposure, on use and fitting of respirators, on protective dress, on use of decontamination procedures, on entry and exit from work areas, and on all aspects of work procedures and protective measures and all other requirements.
 - 2. Submit verification, signed by an occupational health physician, that each employee has been recently examined as required by OSHA regulations. Medical examination will be required prior to entering the work area.
 - 3. Submit names and training certificates of the superintendent and foreman who will be performing work related to this project.
 - 4. Provide verification that the Contractor has provided the following information to the examining physician:
 - a. A copy of OSHA Standard (29 CFR 1910.1025)
 - b. A description of the affected employee's duties as they relate to the employee's exposure.
 - c. The employee's current or anticipated exposure level.
 - d. A description of any personal protective and respiratory equipment to be used.
 - e. Prior lead determination and information from previous medical examinations of the affected employee that is not otherwise available to the examining physician.

1.5 PLACEMENT OF WARNING SIGNS

- A. Post warning signs in and around the work area. Locate signs at such a distance that personnel may read the sign and take necessary protective steps required before entering the work area.
- B. Inform other employers on-site of the nature of the Contractor's work and requirements pertaining to regulated areas in order to comply with OSHA regulation 29 CFR 1910.120. Such notification shall be coordinated with, and approved by the Owner.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 LEAD ABATEMENT

NOT USED

3.2 REMOVAL

- A. Removal work shall not commence until:
 - 1. Work has been coordinated with the Owner.
 - 2. Arrangements have been made for disposal of waste at an acceptable site.
 - 3. Work areas and parts of the building required to remain in use are effectively segregated.
 - 4. Tools, equipment, and material waste receptors are on hand.
 - 5. Arrangements have been made for building security.
 - 6. All preparatory steps have been taken and applicable notices posted and permits obtained (if required).

3.3 DAMAGES

- A. The Contractor shall protect adjacent areas from contamination.

3.4 DAILY CLEANUP

- A. A thorough cleanup of the entire area under active abatement shall occur daily during the entire abatement process

3.5 STORAGE OF LIQUID AND SOLID WASTE

- A. The Contractor must make provisions for the safe storage of waste on-site prior to disposal. For safety reasons, waste storage areas must be treated as abatement areas and access restricted.

3.6 CONTROLLING OFFSITE DISPERSAL

- A. Basic control measures to minimize the dispersal of lead dust and debris from the work area are:
 - 1. Control and limit access to the abatement work areas.
 - 2. Limit tracking of dust and debris.
 - 3. Implement a program of ongoing cleanup.

3.7 CLEANUP AND CLEARANCE TESTING

- A. The Contractor shall perform air, wipe, water, and/or Toxicity Characteristics Leaching Procedure (TCLP) sample collection during the abatement under the supervision of the Owner or the Engineer.
- B. Final cleanup shall proceed as follows:
 - 1. The entire abatement area shall be washed down with a Tri-Sodium Phosphate (TSP) solution. To avoid recontaminating the cleaned area, this solution should be changed according to the manufacturer's recommendations. The dirty water from this operation is considered hazardous and shall be disposed of in watertight containers as required by Paragraph 2.09 below.
- C. After this phase of the final cleanup is complete, a visual inspection will be performed by the Owner or the Engineer to ensure that all visible dust and debris have been removed from the work surfaces and the work area. Any unsatisfactory results will cause the Contractor to re-clean the affected surfaces until the inspector is satisfied with the results.
- D. Clearance testing may now take place by taking wipe samples of the abated area. The clearance criterion is 200 micrograms per square foot. Clearance testing is the responsibility of the Contractor.
- E. Any areas which do not meet these criteria shall be re-cleaned and retested until the standards are met.

3.8 DISPOSAL OF LEAD WASTE

- A. The lead paint chips, all wastewater from cleaning operations, all plastic used for containment, and all rags, cloths or sponges used for cleaning shall be disposed of as hazardous waste. These materials shall be removed in sealed, labeled containers at an authorized disposal site in accordance with all applicable hazardous waste regulations.
- B. The waste materials shall be handled as potentially hazardous waste in accordance with applicable sections of the Natural Resources and Environmental Protection Act, 1994 PA 451. No separate payment for disposal shall be made and the cost of this work is to be included in the work. The Contractor shall furnish to the Owner a certificate of disposal of this material at an appropriate disposal facility, issued by the office of the receiving disposal facility.
- C. A waste manifest shall be forwarded to the Owner after the disposal.

END OF SECTION

SECTION 01450

QUALITY CONTROL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Quality control and control of installation.
- B. References.
- C. Testing and inspection services.
- D. Manufacturers' field services.

1.2 QUALITY CONTROL AND CONTROL OF INSTALLATION

- A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.
- B. Comply with manufacturers' instructions, including each step in sequence.
- C. Should manufacturers' instructions conflict with Contract Documents, request clarification from ENGINEER before proceeding.
- D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
- E. Perform Work by persons qualified to produce required and specified quality.
- F. Verify that field measurements are as indicated on Shop Drawings or as instructed by the manufacturer.
- G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, or disfigurement.
- H. All materials and equipment shall be new, unless otherwise noted.

1.3 REFERENCES

- A. Conform to reference standard by date of issue current on date of Contract Documents.
- B. Should specified reference standards conflict with Contract Documents, request clarification from the ENGINEER before proceeding.
- C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the ENGINEER shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.4 TESTING AND INSPECTION SERVICES

- A. CONTRACTOR shall be responsible for providing, paying for, coordinating and scheduling the services of an independent testing firm (acceptable to OWNER) to perform all testing and related tasks.
- B. The independent firm will perform tests, inspections and other services specified in individual specification sections and as required by the ENGINEER.
- C. Acceptable testing companies for selection by the CONTRACTOR are:
 - 1. Dixon Engineering, Inc. (Lake Odessa, Michigan; Telephone: (616) 374-3221)
 - 2. Nelson Tank Engineering and Consulting, Inc. (Lansing, Michigan; Telephone: (517) 321-1692)
- C. Testing, inspections and source quality control may occur on or off the project site. Perform off-site testing as required by the ENGINEER or the OWNER.
- D. Reports will be submitted by the independent firm to the ENGINEER and CONTRACTOR, in duplicate, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
- E. CONTRACTOR shall coordinate with ENGINEER and/or OWNER; cooperate and coordinate with independent firm; furnish samples of materials, design mix, equipment, tools, storage, safe access, and assistance by incidental labor as requested.
 - 1. Notify ENGINEER and independent firm a minimum of 24 hours prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for CONTRACTOR's use.
- F. Independent testing firm will provide the testing services listed below. Any additional required by the Contract Documents beyond what is listed, shall be provided by the CONTRACTOR.
 - 1. Painting
 - a. Paint thickness measurements for primer, intermediate and final coats.
 - b. Surface preparation.
 - c. Environmental conditions for painting including humidity, dew point, ambient temperature, material temperature, etc.
- G. CONTRACTOR shall not perform the work without the independent firm on site performing the required tests.
- H. Testing and employment of testing agency or laboratory shall not relieve CONTRACTOR of obligation to perform Work in accordance with requirements of Contract Documents.

- I. The independent firm on instructions by the ENGINEER shall perform re-testing or re-inspection required because of non-conformance to specified requirements. Payment for re-testing or re-inspection will be the responsibility of the CONTRACTOR.
- J. Agency Responsibilities:
 - 1. Test samples of mixes submitted by CONTRACTOR.
 - 2. Provide qualified personnel at site. Cooperate with ENGINEER and CONTRACTOR in performance of services.
 - 3. Perform specified sampling and testing of products in accordance with specified standards.
 - 4. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 5. Promptly notify ENGINEER and CONTRACTOR of observed irregularities or non-conformance of Work or products.
 - 6. Perform additional tests required by ENGINEER.
- K. Agency Reports: After each test, promptly submit two copies of report to ENGINEER and to CONTRACTOR. When requested by ENGINEER, provide interpretation of test results. Include the following:
 - 1. Date issued.
 - 2. Project title and number.
 - 3. Name of inspector.
 - 4. Date and time of sampling or inspection.
 - 5. Identification of product and specifications section.
 - 6. Location in the Project.
 - 7. Type of inspection or test.
 - 8. Date of test.
 - 9. Results of tests.
 - 10. Conformance with Contract Documents.
- L. Limits On Testing Authority:
 - 1. Agency or laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.
 - 2. Agency or laboratory may not approve or accept any portion of the Work.

3. Agency or laboratory may not assume any duties of CONTRACTOR.
4. Agency or laboratory has no authority to stop the Work.

1.5 MANUFACTURERS' FIELD SERVICES

- A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, as applicable, and to initiate instructions when necessary.
- B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01500

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

- A. Temporary Utilities.
 - 1. Temporary electricity.
 - 2. Temporary lighting for construction purposes.
 - 3. Internet service.
 - 4. Temporary water service.
 - 5. Temporary sanitary facilities.
- B. Construction Facilities.
 - 1. Field offices and sheds.
- C. Temporary Controls.
 - 1. Dust Control.
 - 2. Barriers
 - 3. Protection of the Work
 - 4. Security measures.
 - 5. Water control.
- D. Removal of utilities, facilities, and controls.

1.2 TEMPORARY ELECTRICITY

- A. Contractor shall provide a portable electric generator, extension cords, and any other appurtenances required for his construction operations. Power from the existing facility will not be available.

1.3 TEMPORARY LIGHTING FOR CONSTRUCTION PURPOSES

- A. While it is anticipated that all construction activities will be performed during daylight hours, the Contractor shall provide any temporary lighting that may be required for contingencies, or for interior applications where existing lighting are not adequate.

1.4 INTERNET SERVICE

NOT USED

1.5 TEMPORARY WATER SERVICE

- A. Water is available at the construction site. Contractor shall make arrangements with the Owner to have water available.
- B. If the construction operations require significant water use, as determined by the Owner or Engineer, the Contractor shall install a backflow preventer with meter at the source prior to use. The Contractor shall pay a deposit of \$1000 for the backflow preventer/meter unit, to be obtained from the City of Ann Arbor Customer Service Department (located on the first floor of City Hall, 301 E. Huron St., Ann Arbor, MI 48104). Water charges will be subtracted from the deposit amount, and the balance returned to the Contractor upon return of the backflow/preventer meter unit. Additional water usage beyond this amount must be paid at the time of return.

1.6 TEMPORARY SANITARY FACILITIES

- A. Provide and maintain required facilities and enclosures. Existing facility use is not permitted. Provide at the time of project mobilization. Provide chemical toilets and provisions for replacement of chemicals and disposal of wastes for the duration of the contract.

1.7 FIELD OFFICES AND SHEDS

- A. Prepare a drawing for submittal and approval showing construction facility layouts including temporary facilities, storage areas, parking, construction work and other related activities.
- B. The Engineer does not require a field office. The use of storage shed for construction operations is not anticipated. The Contractor shall seek approval from the Owner and Engineer for any temporary, on-site storage facilities the Contractor may think necessary.

1.8 DUST CONTROL

- A. No dust migration off site shall be permitted.
- B. All public and private roads, driveways and parking lots used by the Contractor must be maintained in a dust free condition during the life of this Contract. The control of the dust shall be accomplished by the application of dust control materials and methods of application as approved and as directed by the Engineer. Such dust control materials shall be applied as often as is necessary to control the dust.
- C. Should the Contractor be negligent of his duties in providing dust control, the Owner may, with or without notice, cause the same to be done and deduct the cost of such work from any monies due or to become due the Contractor under this Contract, but the performance of such work by the Owner, or at his insistence, shall service in no way to release the Contractor from his liability for dust control.
- D. Street Cleaning
 - 1. Contractor shall sweep and clean City streets adjacent to pool site when there is visible dust or debris on the street surfaces that came from the construction site, from vehicles coming to or from the construction site, or is in any way associated with Contractor's work on this contract.

1.9 BARRIERS

- A. Provide barriers to protect existing facilities and adjacent properties from damage from construction operations.
- B. Provide protection for plant life designated to remain. Replace damaged plants.
- C. Protect non-owned vehicular traffic, stored materials, site and structures from damage.

1.10 PROTECTION OF INSTALLED WORK

- A. Protect installed Work and provide special protection where specified in individual specification Sections.
- B. Provide temporary and removable protection for installed Products. Control activity in immediate work area to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.
- D. Protect finished floors, stairs, and other surfaces from traffic, dirt, wear, damage, or movement of heavy objects, by protecting with durable sheet materials.
- E. Prohibit traffic from landscaped areas.

1.11 WATER CONTROL

NOT USED

1.12 REMOVAL OF UTILITIES, FACILITIES AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, materials, prior to Substantial Completion inspection.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01550

VEHICULAR ACCESS AND PARKING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Vehicular Access
- B. Security
- C. Parking Areas

1.2 DESCRIPTION

- A. Use of Existing Access Roads/Drives:
 - 1. Contractor will be allowed to use Owner's existing roads/drives upon obtaining Owner's written permission.
 - 2. Prevent interference with traffic on existing roads, drives and parking areas. At all times, keep access roads and entrances serving the Site clear and available to Owner, Owner's employees, chemical deliveries, emergency vehicles, and other contractors. Do not use these areas for parking or storage of materials.
 - 3. Contractor shall indemnify and hold harmless Owner from expenses caused by Contractor's operations over existing roads and parking areas.
 - 4. Schedule deliveries to minimize use of driveways and entrances.

1.3 SITE ACCESS

- A. Contractor shall access the site via the Brooks Street entrance.

1.4 SECURITY

- A. The Contractor shall abide by and implement all site security measures in use at the Mack Pool facility.
- B. Contractor's security procedures shall include but shall not be limited to:
 - 1. Maintain daily log of vehicle license plate numbers on site.
- C. Use of Owner's security measures does not relieve Contractor of its responsibility to secure its own working spaces and materials.

1.5 CONTRACTOR PARKING

- A. Contractor personnel and subcontractor personnel shall park in the parking area accessed from Brooks Street.
- B. Contractor may park a limited number of construction vehicles within the staging area.

- C. Disruption to the neighborhood (idling engines, radios, lights, etc.) before or after approved construction hours is prohibited.

1.6 MAINTENANCE OF ACCESS

- A. Contractor shall maintain driveway and parking to continuously provide access for Mack Pool staff vehicles, Owner vehicles, chemical deliveries for Owner, emergency vehicles, and parking areas for Owner's personnel.
- C. Public roads shall be passable at all times and no parking which disrupts traffic is permitted on Brooks Street or the Pool facility driveway.
- E. Clean paved roads, driveways and parking areas over which Contractor's vehicles travel. Cleaning shall be done a minimum five times per week or more frequently as directed by Engineer. Areas to be cleaned include:
 - 1. Pavement, including driveways and parking areas, within the Pool site limits.
 - 2. Public roads that require sweeping and cleaning due to Contractor's operations.

1.7 RESTORATION

- A. Restore to pre-construction conditions existing roads, walks, and parking areas damaged by Contractor, subject to approval of owner of roads, walks, and parking areas.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01730

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. Includes, but is not limited to, all demolition and removals of existing materials, equipment necessary to complete the work specified and as shown on the Contract Drawings. Items for removal include process piping, valves, doors, windows, metals, masonry, electrical equipment, mechanical equipment and all related items.
- B. The window lintels in the pool room may have lead paint. Contractor shall be responsible for all necessary procedures for removal, handling, transportation, and disposal of hazardous materials.

1.2 SECTION INCLUDES

- A. Selective removal and off-site disposal of following:
 - 1. Removal of all items marked "remove" or "demolish" on Drawings.
 - 2. Removal, protection, and reinstallation of existing fixtures and equipment items shown or marked as "remove and reinstall."

1.3 RELATED SECTIONS

- A. Section 01370 – Lead Based Paint Removal

1.4 DEFINITIONS

- A. Remove: Remove and dispose of items shown. Discard demolished or removed items except for those shown to remain, those shown as reinstalled, and historical items that are to remain Owner's property.
- B. Remove and Reinstall: Remove items shown; clean, service and otherwise prepare them for reuse; store and protect against damage. Reinstall items in same location or in location shown.
- D. Existing to Remain: Protect construction or items shown to remain against damage during selective demolition operations. When permitted by Engineer, Contractor may elect to remove items to suitable, protected storage location during selective demolition and properly clean and reinstall items in their original locations.

1.5 SUBMITTALS

- A. Shop Drawings

NOT USED
- B. Submit schedules listed below to Engineer and Owner.

NOT USED

1.6 QUALITY ASSURANCE

- A. Regulatory Requirements:
 - 1. Demolition operations shall comply with OSHA and EPA requirements and EPA notification regulations insofar as they apply to demolition Work under this Contract.
 - 2. Comply with hauling and disposal regulations of authorities having jurisdiction.
 - 3. If hazardous materials are found during demolition operations, comply with all applicable local, state and national requirements for removal and disposal.
- B. Facility Access:
 - 1. Do not close, block or obstruct streets, walks or other occupied or used facilities without written permission from authorities having jurisdiction.
 - a. Use alternative routes around closed or obstructed routes if required by governing regulations.
 - 2. Coordinate with Owner's continuing occupation of portions of existing building, and Owner's partial occupancy of completed new addition.
 - 3. Plan and present the Contractor's plan for achieving the partial occupation by Owner in a submittal and in a meeting with the Owner and Engineer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Delivery: Disassemble or cut large items into smaller pieces to promote safe removal and transportation
 - 1. Haul away and dispose of debris and materials neither retained by Owner, nor reused or reinstalled.
 - 3. Arrange for disposal areas.
 - 4. Traffic: Conduct selective demolition operations and debris removal to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities.
- B. Handling: Contractor shall take every precaution to prevent spillage of materials being hauled in public streets.
 - 1. It shall be Contractor's responsibility to immediately clean spillage that may accidentally occur.
 - 2. Do not burn removed material on or within Project Site.

1.8 PROJECT CONDITIONS

- A. Materials Ownership:

NOT USED

- B. Environmental Requirements: Use water sprinkling, temporary enclosures, and other suitable methods to limit dust and dirt rising and scattering in air to lowest practicable level. Comply with governing regulations relating to environmental protection. Do not use water when it may create hazardous or objectionable conditions including ice, flooding, and pollution.
 - 1. Existing drains shall be protected from debris. Protect drains prior to beginning any demolition work.
- C. Existing Conditions: Owner will be continuously occupying building areas immediately adjacent to selective demolition areas.
- D. Owner assumes no responsibility for actual condition of items or structures scheduled for demolition.

1.9 SEQUENCING

- A. Conduct selective demolition work in manner that minimizes need for disruption or interference of Owner's normal on-Site operations.
- B. Include coordination for shutoff, capping, and continuation of utility services, together with details for dust and noise control protection to ensure uninterrupted on-Site operations by Owner.

1.10 SCHEDULING

- A. Schedule: Submit schedule showing proposed methods and sequence of operations for selective demolition work to Owner's representative for review before commencement of Work.
- B. Arrange selective demolition schedule so as not to interfere with Owner's on-site operations.
- C. Give minimum of 5 days advance notice to Owner of demolition activities, which affect Owner's normal operations.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Site Verification of Conditions: Before beginning selective demolition work inspect areas of Work. Survey existing conditions and correlate with requirements shown to determine extent of selective demolition required. Photograph existing structure surfaces, equipment, or surrounding properties, which could be misconstrued as damage resulting from selective demolition work. File with Owner's representative before starting Work.
- B. Inventory and record condition of items scheduled as "remove and reinstall".
- C. If unanticipated mechanical, electrical, or structural elements conflict with intended function or design, investigate, and measure nature and extent of conflicts. Promptly

submit detailed written reports to Owner's Representative. Pending receipt of directive from Owner's Representative, rearrange selective demolition schedule to continue general job progress without delay.

3.2 UTILITY SERVICES

- A. Where utility services are scheduled for removal, relocation, or abandonment, install bypass connections and temporary service to maintain continuity of services to other building parts before proceeding with selective demolition.
- B. Do not interrupt existing utilities serving occupied or used facilities, except when authorized in writing by authorities having jurisdiction.
- C. Maintain existing utilities shown as remaining. Keep in service, and protect existing utilities against damage during selective demolition operations.
- D. Locate, identify, stub off and disconnect utility services that are not to remain active.
 - 1. Owner will arrange to shut off designated utilities when requested by Contractor.
 - 2. Arrange to shut off utilities with utility companies.
 - 3. Provide a thrust block for disconnected and capped utilities.
- E. Cut off pipe or conduit in walls or partitions scheduled for removal. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.

3.3 PREPARATION

- A. Drain, purge, or remove, collect and dispose of chemicals, gases, explosives, acids, flammable, or other dangerous material before proceeding with selective demolition operations.
- B. Cover and protect furniture, equipment, and permanent fixtures from soiling or damage while demolition Work is done in rooms or areas where items remain in place.
- C. Protect existing finish work that remains in place and becomes exposed during demolition operations.
- D. Protect floors with suitable coverings when necessary.
- E. Where selective demolition occurs immediately adjacent to occupied portions of building, or to separate areas of noisy or extensive dirt or dust operations, construct and maintain temporary, insulated, fire-rated solid dustproof partitions.
 - 1. Construct dustproof partitions of minimum 4-inch studs, 5/8-inch-thick drywall (joints taped on occupied side), 1/2-inch fire-retardant plywood on demolition side, and fill partition cavity with sound-deadening insulation.
 - 2. Equip partitions with dustproof doors and security locks if required.
- F. Provide weatherproof closures for exterior openings resulting from demolition Work. Provide temporary weather protection during interval between demolition and removal of existing construction on exterior surfaces, and installation of new construction to ensure that no water leakage or damage occurs to structure or interior areas of existing building.

- G. Provide and ensure free and safe passage of Owner's personnel and general public to and from occupied portions of building around selective demolition areas.
 - 1. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury.
 - 2. Build temporary covered passageways required by authorities having jurisdiction.
- H. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of demolished structures or elements, or adjacent facilities or Work to remain.
- I. Cease operations and notify Owner's Representative immediately if safety of structure seems endangered. Take precautions to support structure until determination is made for continuing operations.
- J. Remove protection at completion of Work.

3.4 DEMOLITION

- A. Special Techniques: Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools.

3.5 REPAIR\RESTORATION

- A. Repair damages caused by demolition more extensive than required.
- B. Return structures and surfaces to condition existing before commencing selective demolition Work.
- C. Repair adjacent construction or surfaces soiled or damaged by selective demolition Work.
- D. Promptly repair damages caused to adjacent facilities by demolition Work at no cost to Owner.

3.6 CLEANING

- A. Contractor shall maintain an order of neatness and good housekeeping comparable to that observed by Owner.
- B. Keep tools, scaffolding, and other demolition equipment in neat and orderly arrangement.
- C. Remove dirt and debris resulting from Contractor's demolition operations from Site daily. Dirt and debris shall not collect or interfere with Owner's facility operations.
- D. Upon completion of demolition Work, remove tools, equipment, and demolished materials from Site. Remove protection and leave interior areas broom clean.

END OF SECTION

SECTION 01740

CLEANING AND WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Progress Cleaning
- B. Final Cleaning

1.2 GENERAL

- A. Execute cleaning, during progress of the Work, and at completion of the Work.
- B. Adequate periodic cleaning will be a condition for recommendation of progress payments.
- C. Waste Disposal
 - 1. Properly dispose all waste materials, surplus materials, debris, and rubbish off the Project Site.
 - 2. Provide suitable containers for storage of waste materials and debris.
 - 3. Do not burn or bury rubbish and waste materials on the Project Site.
 - 4. Do not dispose of volatile or hazardous wastes such as mineral spirits, oil, or paint thinner in storm or sanitary drains.
 - 5. Do not discharge wastes into streams or waterways.
 - 6. Comply with all federal, state, and local anti-pollution laws, ordinances, codes, and regulations when disposing waste materials, debris, and rubbish.
- D. Work shall include, but not be limited to:
 - 1. Protection of pool, tiles, gunnite and decking.
 - 2. Protection of all drains.
 - 3. Preventing construction waste and debris from washing down drains.

1.3 PROGRESS CLEANING

- A. Contractor shall periodically clean the work site at least once weekly
- B. Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the work.
- C. Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended.
- D. Remove debris from concealed spaces before enclosing the space.

- E. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials.
- F. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration.
- G. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period.
- H. Schedule cleaning operations so that resulting dust, debris and other contaminants will not fall on wet, newly painted surfaces and will not contaminate building systems or electrical or control panels.

1.4 FINAL CLEANING

- A. Complete the following cleaning and waste-removal operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - 1. Clean and remove from the Project rubbish, waste material, debris, and other foreign substances.
 - 2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - 3. Hose clean sidewalks and loading areas.
 - 4. Leave watercourses, gutters, and ditches open and clean.
 - 5. Repair pavement, roads, sod, and all other areas affected by construction operations and restore them to original condition or to minimum condition specified.
 - 6. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of spatter, grease, stains, fingerprints, films, and similar foreign substances.
 - 7. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, and similar spaces.
 - 8. Sweep concrete floors broom clean in unoccupied spaces.
 - 9. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.
 - 10. Remove tags and labels that are not permanent.
 - 11. Touch up and otherwise repair and restore chipped, scratched, dented, or otherwise marred surfaces to specified finish and match adjacent surfaces. 1) Do not paint over "UL" or similar labels, including mechanical and electrical nameplates.
 - 12. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

13. Replace disposable air filters and clean permanent air filters. Clean the exposed surfaces of diffusers, registers, and grills.
 14. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
- B. Maintain the cleaning until Owner occupies the Project or portion thereof.
 - C. Leave Project clean and in a neat and orderly condition satisfactory to Engineer.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Use only those cleaning materials which will not create hazards to health or property and which will not damage surfaces.
- B. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned.
- C. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01770

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Substantial Completion
- B. Final Inspection
- C. Request for Final Payment

1.2 SUBSTANTIAL COMPLETION

- A. Before requesting inspection for Certification of Substantial completion, complete the following. List exceptions in the request.
 - 1. In the Application for Payment that coincides with, or first follows, the date Substantial Completion is claimed, show 100 percent completion for the portion of the work claimed as substantially complete. Include supporting documents for completion as indicated in these Contract Documents and a statement showing an accounting of changes to the contract price.
 - 2. If 100 percent completion cannot be shown, include a list of incomplete items, the value of incomplete construction, and reasons the work is not complete.
 - 3. Advise Owner of pending insurance changeover requirements.
 - 4. Submit specific warranties, workmanship bonds, maintenance agreements, final certifications, and similar documents.
 - 5. Obtain and submit releases enabling Owner unrestricted use of the work and access to services and utilities; include occupancy permits, operating certificate, and similar releases.
 - 6. Complete final cleanup requirements, including touch-up painting. Touch-up and otherwise repair and restore marred exposed finishes.
- B. Inspection Procedures: On receipt of a request for inspection, Engineer will either proceed with inspection or advise Contractor of unfilled requirements.
 - 1. Engineer will prepare the Certificate of Substantial Completion following inspection, or advise Contractor of construction that must be completed or corrected before the certificate will be issued.
 - 2. Engineer will repeat inspection when requested and assured that the work has been substantially completed.
 - 3. Results of completed inspection will be the basis of requirements for final acceptance.
 - 4. Date of Substantial Completion will begin the warranty period unless noted otherwise.

1.3 FINAL ACCEPTANCE

- A. Before requesting final inspection for certification of final acceptance and final payment, complete the following. List exceptions in the request.
 - 1. Submit the final payment request with releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.
 - 2. Submit an updated final statement, accounting for final additional changes to the contract price.
 - 3. Submit a copy of Engineer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance. The list shall be endorsed and dated by the Engineer.
 - 5. Submit consent of surety to final payment.
 - 6. Submit a final liquidated damages settlement statement.
 - 7. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 - 8. Submit record drawings, damage or settlement survey, and similar final record information.
 - 9. Discontinue or change over and remove temporary facilities from the site, along with construction tools, mock-ups, and similar elements.
 - 10. Complete final cleaning in accordance with Section 01740, Cleaning and Waste Management.
- B. Reinspection Procedure: the Engineer will inspect the work upon receipt of notice that work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to the Engineer.
 - 1. Upon completion of reinspection, the Engineer will prepare a certificate of final acceptance, or advise the Contractor of work that is incomplete, or of obligations that have not been fulfilled yet and which are required for final acceptance.
 - 2. If necessary, reinspection will be repeated.

1.4 REQUEST FOR FINAL PAYMENT

- A. Submit request for final payment in accordance with the Agreement and General Conditions.
- B. Request for final payment shall include:
 - 1. AIA Documents.

2. Documents required in the General Conditions, as may be modified by the Supplementary Conditions.
3. Releases or Waivers of Lien Rights:
 - a. When submitting releases or waivers of Lien rights, provide release or waiver by Contractor and each Subcontractor and Supplier that provided Contractor with labor, material, or equipment.
 - b. Provide list of Subcontractors and Suppliers for which release or waiver of Lien is required.
 - c. Each release or waiver of Lien shall be signed by an authorized representative of entity submitting release or waiver to Contractor, and shall include Subcontractor's or Supplier's corporate seal if applicable.
 - d. Release or waiver of Lien may be conditional upon receipt of final payment.
4. Consent of Surety.
5. Documentation that all punch list items are complete.
6. Warranties.
7. Operation and Maintenance Manuals.
8. Record Drawings being maintained by the Contractor.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 01780

CLOSEOUT SUBMITTALS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project record documents.
- B. Warranties and bonds

1.2 PROJECT RECORD DOCUMENTS

- A. Maintain on site one clean, undamaged set of the following record documents; record actual revisions to the Work:
 - 1. Drawings.
 - 2. Specifications.
 - 3. Addenda.
 - 4. Change Orders and other modifications to the Contract.
 - 5. Reviewed Shop Drawings, Product Data, and Samples.
 - 6. Manufacturer's instruction for assembly, installation, and adjusting.
- B. Ensure entries are complete and accurate, enabling future reference by OWNER.
- C. Store record documents separate from documents used for construction.
- D. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
 - 1. Manufacturer's name and product model and number.
 - 2. Product substitutions or alternates utilized.
 - 3. Changes made by Addenda and modifications.
- E. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
 - 1. Measured depths of foundations in relation to finish floor datum.
 - 2. Measured horizontal and vertical locations of all underground and exposed utilities and appurtenances, including thrust blocks, referenced to permanent surface improvements.
 - 3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the work.

4. Measured horizontal and vertical locations of all concealed and exposed electrical conduits. Conduits shall be shown in plain view on the record drawings with their size and contents indicated.
 5. Field changes of dimension and detail.
 6. Details not on original Contract drawings.
- F. Indicate the date of revisions to the plans in the appropriate box on the plans.
- G. Submit documents to ENGINEER with claim for final Application for Payment.

1.3 WARRANTIES AND BONDS

- A. Obtain warranties and bonds executed in duplicate by responsible subcontractors, suppliers, and manufacturers. All warranties shall begin at the Date of Substantial Completion, or at the date of acceptance by the OWNER, whichever is later.
- B. Execute and assemble all transferable warranty documents and bonds from subcontractors, suppliers, and manufacturers into one binder.
- C. Verify that documents are in proper form, contain full information, and are notarized. Manufacturer's warranties shall be in the name of the Owner.
- D. Provide Table of Contents and assemble in three-ring binders with durable plastic cover.
- E. Submit prior to Final Application for Payment.
- F. Time of submittals:
1. Make warranty submittal within ten days after Date of Substantial Completion, prior to final Application for Payment.
 2. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty or bond period.
- G. Rejection of Warranties: OWNER reserves the right to reject warranties and to limit selections to products with warranties not in conflict with requirements of the Contract Documents.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION

SECTION 05020

MISCELLANEOUS METALS

1.00 GENERAL

1.1 DESCRIPTION

- A. Provide and install all miscellaneous metal items indicated on the Drawings and specified herein.
- B. this section addresses all metal fabrications not called out elsewhere in these specifications.
- C. The following items are also part of this Section and must meet general specification parameters: miscellaneous plates, inserts, structurals, fasteners, and all other fabricated metal items necessary for a complete and operable installation.
- D. Related work that is not a part of this Section and is specified elsewhere includes:

Metal Fasteners	Sec. 05050
Metal Deck	Sec. 05310
Ladders	Sec. 05515
Handrails and Railings	Sec. 05520
Painting	Sec. 09900

1.2 REFERENCE STANDARDS

- A. For miscellaneous metal structural work, conform to the American Institute of Steel Construction (AISC) "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings" for Type 2 and 3 construction with commentary and applicable supplements. Also comply with the AISC "Code of Standard Practice for Steel Buildings and Bridges".
- B. For stair, ladder, railing, and walking surface work of this Section, comply with the Michigan Occupational Safety and Health Act Standards, and federal and local safety standards as they apply for floor and wall openings and general hazards regarding falling.
- C. For all welding work use welders certified for the specified standard. Comply with the American Welding Society "Structural Welding Code" and "Standard Code for Welding in Building Construction" (the term "Building Commissioner" when cited in the codes shall be interpreted to mean "Engineer").
- D. For all bolted connections comply with the "Specification for Structural Joints Using ASTM A325 or A-490 Bolts" approved by the Research Council on Riveted and Bolted Structural Joints of the Engineering Foundation including commentary by the AISC.

1.3 SUBMITTALS

- A. Submit Shop Drawings for all custom work specified in this Section. Where standard products are specified and no modification will be required, submit manufacturer's literature.
- B. See Section 01330 for additional requirements.

1.4 PRODUCT HANDLING AND STORAGE

- A. Ship all prefabricated miscellaneous metal items in a protected manner to prevent damage prior to installation. Store materials awaiting installation so that they will not be adversely affected by weathering.

2.00 PRODUCTS

2.1 GENERAL PROVISIONS

- A. Unless otherwise noted on the Drawings or in these Specifications, use steel for miscellaneous metal items.
- B. For structural steel shapes, plates and bars, conform to the requirements of ASTM A36 "Specification for Structural Steel".
- C. When galvanizing is called for, provide hot galvanized coatings that conform to the requirements of ASTM A123 "Specification for Zinc (Hot-Galvanized) Coatings on Structural Steel Shapes, Plates, and Bars and Their Products" or ASTM A446 "Specification for the Physical Quality of Zinc-Coated (Galvanized) Steel Sheet by the Hot-Dip Process".
- D. Use prime paints and finish paints that comply with Section 09900 of these Specifications.
- E. Where aluminum is called for, provide aluminum that conforms to ASTM B209 (6061-T6) for plates, ASTM B221 (6061-T6) for extrusions, and ASTM B429 (6061-T6) for pipe.
- F. Where stainless steel is called for, provide stainless steel that conforms to ASTM A312 for pipes and ASTM A412 for plate, sheet, and strip.
- G. Bolt or weld all shop-fabricated structural metal assemblies. For framing bolts, use bolts that conform to ASTM A307 (where normal strength bolts can be used), or ASTM A325M (where high-strength bolts are required). For welds, use AWS A5.1, E70XX welding electrodes.

PART 3 – EXECUTION

3.1 WORKMANSHIP

- A. As far as practical shop assemble all miscellaneous metal items. Make field measurements prior to shop assembly to ensure proper fit of shop fabricated items.
- B. Install miscellaneous metalwork so that corners are square, vertical lines are plumb, and horizontal lines level.
- C. Properly anchor all miscellaneous metalwork. Coordinate with the work of other Sections where inserts and/or anchors must be embedded in concrete.
- D. Unless noted otherwise, all welding shall conform to AWS D1.1.

3.2 PROTECTION

- A. Protect all miscellaneous metal work against damage during shipment, storage, and after installation while other work is being performed.

END OF SECTION

SECTION 05050

METAL FASTENING

PART 1 – GENERAL

1.1 THE REQUIREMENT

- A. Furnish all materials, labor, and equipment required to provide all metal welds and fasteners not otherwise specified, in accordance with the Contract Documents.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Miscellaneous Metals	Section 05020
Metal Deck	Section 05310
Ladders	Section 05515
Handrails and Railings	Section 05520

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.

1. Michigan Building Code
2. AISC Specification for Structural Joints Using ASTM A325 or A490 Bolts.
3. AISC Code of Standard Practice
4. AWS D1.1 Structural Welding Code - Steel
5. AWS D1.2 Structural Welding Code - Aluminum
6. AWS D1.6 Structural Welding Code – Stainless Steel
7. Aluminum Association Specifications for Aluminum Structures
8. ASTM A572/A572M-94C Standard Specification for High Strength Low-Alloy Columbium-Vanadium Structural Steel Grade 50
9. ASTM A307 Standard Specification for Carbon Steel Externally Threaded Standard Fasteners
10. ASTM A325 Standard Specification for High-Strength Bolts for Structural Steel Joints
11. ASTM A489 Standard Specification for Eyebolts
12. ASTM A490 Standard Specification for Quenched and Tempered Alloy Steel Bolts for Structural Steel Joints

13.	ASTM A563	Standard Specifications for Carbon and Alloy Steel Nuts
14.	ASTM F593	Standard Specification for Stainless Steel Bolts; Hex Cap Screws, and Studs
15.	ASTM F594	Standard Specification for Stainless Steel Nuts
16.	ASTM D1785	Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe
17.	ASTM F467	Standard Specification for Nonferrous Nuts for General Use

1.4 SUBMITTALS

- A. Submit the following in accordance with Section 01330, Submittals.
 - 1. Shop Drawings providing the fastener's manufacturer and type and certification of the fastener's material and capacity.

1.5 QUALITY ASSURANCE

- A. Fasteners not manufactured in the United States shall be tested and certification provided with respect to specified quality and strength standards. Certifications of origin shall be submitted for all U.S. fasteners supplied on the project.
- B. High strength bolts used in connections of structural steel will be visually inspected in accordance with Article 3.04.

PART 2 – PRODUCTS

2.1 ANCHOR BOLTS

- A. Anchor bolts shall conform to ASTM A36 or ASTM A307 Grade A except where stainless steel or other approved anchor bolts are shown on the Drawings. Anchor bolts shall have hexagonal heads and shall be supplied with hexagonal nuts meeting the requirements of ASTM A563 Grade A.
- B. Where pipe sleeves around anchor bolts are shown on the Drawings, pipe sleeves shall be cut from Schedule 40 PVC plastic piping meeting the requirements of ASTM D1785.

2.2 STAINLESS STEEL BOLTS

- A. Stainless steel bolts shall conform to ASTM F-593. All underwater fasteners, fasteners in confined areas containing fluid, and fasteners in corrosive environments shall be Type 316 stainless steel unless noted otherwise. Fasteners for aluminum and stainless steel members not subject to the above conditions shall be Type 304 stainless steel unless otherwise noted.
- B. Stainless steel bolts shall have hexagonal heads with a raised letter or symbol on the bolts indicating the manufacturer, and shall be supplied with hexagonal nuts meeting the requirements of ASTM F594. Nuts shall be of the same alloy as the bolts.

2.3 CONCRETE ANCHORS

- A. All concrete anchors shall be adhesive anchors.
1. Adhesive anchors shall be two part injection type.
- B. Adhesive anchors shall consist of stainless steel threaded rods or bolts anchored with an adhesive system into hardened concrete or grout-filled masonry. The adhesive system shall use a two-component adhesive mix and shall be injected with a static mixing nozzle following manufacturer's instructions. Thoroughly clean drill holes of all debris and drill dust with wire brush prior to installation of adhesive and threaded rod/bolt. Wipe rod free from oil that may be present from shipping or handling. The embedment depth of the rod/bolt shall provide a minimum allowable bond strength that is equal to the allowable tensile capacity of the rod/bolt (see Table 1) unless noted otherwise on the Drawings. The adhesive system shall be "Epcon System A7, C6, or G5" as manufactured by ITW Ramset/Redhead, "HIT HY-150 or RE-500 Injection Adhesive Anchor System" as manufactured by Hilti, Inc., or "SET/ET Epoxy-Tie" or "AT Acrylic-Tie" as manufactured by Simpson Strong-Tie Co.
- C. Concrete anchors used to anchor aluminum, FRP, or stainless steel shall be Type 304 stainless steel unless noted otherwise. All underwater concrete anchors shall be Type 316 stainless steel.

TABLE 1
ALLOWABLE TENSILE CAPACITY (KIPS)

Size	A36 Threaded Rod/Bolt	SST Threaded Rod/Bolt
3/8"	2.1	1.9
1/2"	3.8	3.5
5/8"	5.9	5.6
3/4"	8.4	8.2
7/8"	11.5	11.4
1"	15.0	15.0

2.4 MASONRY ANCHORS

- A. Anchors for fastening to solid or grout-filled masonry shall be stainless steel adhesive anchors as specified above for concrete anchors.
- B. Anchors for fastening to hollow masonry or brick shall be adhesive anchors consisting of threaded rods or bolts anchored with an adhesive system dispensed into a screen tube inserted into the masonry. The adhesive system shall use a two-component adhesive mix and shall inject into the screen tube with a static mixing nozzle. Thoroughly clean drill holes of all debris and drill dust with nylon (not wire) brush prior to installation of adhesive and anchor. Contractor shall follow manufacturer's installation instructions. The adhesive system shall be "Epcon System A7, C6, or G5" as manufactured by ITW Ramset/Redhead, "HIT HY-20 System" as manufactured by Hilti, Inc., or "SET/ET Epoxy-Tie" or "AT Acrylic-Tie" as manufactured by Simpson Strong-Tie Co.
- C. Masonry anchors used to anchor aluminum, FRP, or stainless steel shall be Type 304 stainless steel unless noted otherwise. All underwater anchors shall be Type 316 stainless steel.

2.5 ANTISEIZE LUBRICANT

- A. Antiseize lubricant shall be Graphite 50 Anti-Seize by Loctite Corporation, 1000 Anti-Seize Paste by Dow Corning, 3M Lube and Anti-Seize by 3M, or equal as approved by Engineer and Owner.

PART 3 – EXECUTION

3.1 MEASUREMENTS

- A. The Contractor shall verify all dimensions and review the Drawings and shall report any discrepancies to the Engineer for clarification prior to starting fabrication.

3.2 BOLT INSTALLATION

- A. Anchor Bolts, Concrete Anchors, and Masonry Anchors
 1. Anchor bolts shall be installed in accordance with AISC "Code of Standard Practice" by setting in concrete while it is being placed and positioned by means of a rigidly held template.
 2. The Contractor shall verify that all concrete and masonry anchors have been installed in accordance with the manufacturer's recommendations and that the capacity of the installed anchor meets or exceeds the specified safe holding capacity.
 3. Concrete anchors shall not be used in place of anchor bolts without Engineer's approval.
 4. All stainless steel threads shall be coated with antiseize lubricant.
- B. Other Bolts
 1. All dissimilar metal shall be connected with appropriate fasteners and shall be insulated with a dielectric or approved equal.
 2. All stainless steel bolts shall be coated with antiseize lubricant.

END OF SECTION

SECTION 05310

METAL DECK

PART 1 - GENERAL

1.1 SUMMARY

- A. This section include the requirements for supply and installation of metal decking.
- B. Include edge support, sheets and opening reinforcement.

1.2 RELATED WORK

Miscellaneous Metals	Section 05020
Metal Fastening	Section 05050
EPDM Single-Ply Membrane Roofing	Section 07530

1.3 REFERENCES

- A. AISI – North American Specifications for the Design of Cold-Formed Steel Structural Members.
- B. ASTM A653 - 11 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process
- C. ANSI/AWS D1.3 Structural Welding Code/Sheet Steel – 98 Structural Welding Code-Sheet Steel.
- D. ASTM A1008 - 12 Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Solution Hardened, and Bake Hardenable

1.4 DESIGN REQUIREMENTS

- A. Design and fabricate deck to match existing deck.

1.5 DELIVERY AND STORAGE

- A. Deliver to jobsite as required for erection.
- B. Stack on wood blocking clear of ground.
- C. Tilt sufficiently to ensure no water lies on material.

1.6 SUBMITTALS

- A. Shop Drawings
 - 1. Submit erection diagrams and details for review.
 - 2. Show location of various sheet lengths, sheet quantities, thickness and zinc-coating designation.

PART 2 - PRODUCTS

2.1 FABRICATION

- A. Fabricate decks with minimum Grade A sheet steel with a minimum yield strength of 40 ksi and a minimum thickness as indicated on the drawings for roof and floor deck.
- B. Minimum base steel thickness to be not less than difference between specified nominal thickness and its permissible negative deviation.
- C. All decks to receive G90 zinc-coating unless specified otherwise.
- D. At completion of fabrication, the tolerances shall conform to the following:
 - 1. Depth of metal deck not more than 0 .04" under design depth.
 - 2. Cover width not to exceed design width by more than 1/8" per foot of width.
- E. Roof Deck profile to be match existing, in conformity with United Steel Deck approved type.

2.2 ACCEPTABLE MANUFACTURERS

- A. VicWest Steel Inc.
- B. Canam
- C. or approved equal

PART 3 - EXECUTION

3.1 PREPARATION

- A. Prior to erection of metal deck, verify work that is to receive deck.
- B. Report discrepancies immediately.
- C. Commencement implies acceptance of site conditions.

3.2 SAFETY DURING ERECTION

- A. Adequately band metal deck being hoisted to working level.
- B. Sling using steel wire top choker type.
- C. Tag line bundles during ascent.
- D. Place bundles to avoid overloading support structure.
- E. Align metal deck after laying. Properly secure in place prior to leaving jobsite at end of working day.
- F. Secure loose bundles of metal deck sheets at completion of working day.
- G. Remove metal deck scraps, strappings, packaging materials and other debris pertaining to metal deck at end of each working day.

3.3 ERECTION

- A. Place and adjust to final position before permanently fastening.
- B. Fasten at maximum 12 inch centers or 2 flute spacings, whichever is the lesser, along bearing supports. Provide standard $\frac{3}{4}$ " diameter plug welds to ensure proper fastening and non-burning.
- C. Provide 2" end laps formed over supports.
- D. Mechanically fasten side laps at not more than 24" centers. For metal deck base steel thicker than 0.036" welding permissible using 1" long welds at 36" intervals maximum.
- E. Fasten to longitudinal supports at maximum 4 foot centers.
- F. Provide reinforcement for openings across flutes as follows:
 - 1. Openings 6" and smaller: if not more than two vertical webs removed, reinforcement not required.
 - 2. Openings 6" to 12" across flutes: provide 2" x 2" x $\frac{1}{4}$ " angle reinforcement to frame across each side of opening in direction perpendicular to flutes. Weld angle to minimum two flutes each side of opening.
 - 3. Opening 12" to 18" across flutes: provide reinforcement as indicated on Drawings.
 - 4. Apply two coats zinc chromate paint to all cuts, welds and surfaces damaged by welding.

END OF SECTION

SECTION 05515

LADDERS

PART 1 - GENERAL

1.1 REQUIREMENT

- A. Furnish all materials, labor, and equipment required to provide all ladders in accordance with the requirements of the Contract Documents.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Section 05020 - Miscellaneous Metals
Section 05050 - Metal Fastening
Section 09900 - Painting

1.3 REFERENCE SPECIFICATIONS, CODES AND STANDARDS

- A. Without limiting the generality of the Specifications, all work specified herein shall conform to the applicable requirements of the following documents.
 - 1. Michigan Building Code
 - 2. Occupational Safety and Health Administration (OSHA) Regulations

1.4 SUBMITTALS

- A. Submit the following in accordance with Section 01300, Submittals.
 - 1. Complete fabrication and erection drawings of all metalwork specified herein.

PART 2 - PRODUCTS

2.1 LADDERS

- A. Ladders shall be furnished with all mounting brackets, baseplates, fasteners, and necessary appurtenances for a complete and rigid installation.
- B. All ladders shall be galvanized steel, conforming to the requirements of ASTM A36 "Specification for Structural Steel", with a paint finish as specified in Section 09900. Galvanizing shall conform to provisions in Section 05020.
- C. All ladders shall conform to dimensions indicated on the Drawings and shall comply with OSHA requirements.
- D. Side rails shall be 1-1/2 inch diameter Schedule 80 pipe, minimum.
- E. Rungs shall be serrated 3/4 inch diameter, minimum.
- F. All exposed connections shall be welded and ground smooth.

- G. Ladder in vaults below access doors shall have side extensions to extend above top of vault for access into vault.
- H. Rung spacing of ladders shall be evenly spaced starting with top rung located at top elevation of access point of ladder.
- I. Ladders shall be as manufactured by Thompson Fabricating Company, or equal as approved by Engineer and Owner.

PART 3 - EXECUTION

3.1 FABRICATION

- A. All measurements and dimensions shall be based on field conditions and shall be verified by the Contractor prior to fabrication. Such verification shall include coordination with adjoining work.
- B. All fabricated work shall be shop fitted together as much as practicable, and delivered to the field, complete and ready for erection.
- C. All work shall be fabricated and installed in a manner that will provide for expansion and contraction, prevent shearing of bolts, screws, and other fastenings, ensure rigidity, and provide a close fit of sections.
- D. Finished members shall conform to the lines, angles, and curves shown on the Drawings and shall be free from distortions of any kind.
- E. All shearings shall be neat and accurate, with parts exposed to view neatly finished. Flame cutting is allowed only when performed utilizing a machine.
- F. All shop connections shall be welded unless otherwise indicated on the Drawings or specified herein. Bolts and welds shall conform to Section 05050, Metal Fastening. All fastenings shall be concealed where practicable.
- G. Fabricated items shall be shop painted when specified in accordance with Section 09900, Painting.

3.2 INSTALLATION

- A. Assembly and installation of fabricated system components shall be performed in strict accordance with manufacturer's recommendations.
- B. All miscellaneous metalwork shall be erected square, plumb and true, accurately fitted, adequately anchored in place, and set at proper elevations and positions.
- C. Metalwork shall be field painted when specified in accordance with Section 09900, Painting.

END OF SECTION

SECTION 05520

GUARDRAILS AND RAILINGS

PART 1 - GENERAL

1.1 THE REQUIREMENT

- A. Furnish all materials, labor, and equipment required to provide all guardrails and railings in accordance with the Contract Documents.

1.2 RELATED WORK SPECIFIED ELSEWHERE

Miscellaneous Metals	Section 05020
Metal Fastening	Section 05050
Painting	Section 09900

1.3 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

- A. Without limiting the generality of the other requirements of the specifications, all work herein shall conform to the applicable requirements of the following documents. All referenced specifications, codes, and standards refer to the most current issue available at the time of Bid.
 - 1. Michigan Building Code
 - 2. Occupational Safety and Health Administration (OSHA) Regulations

1.4 SUBMITTALS

- A. Submit the following in accordance with Section 01330, Submittals.
 - 1. Complete fabrication and erection drawings of all metal work specified herein.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

NOT USED

2.2 GUARDRAILS AND RAILINGS

- A. General - Guardrail systems shall consist of all railings, posts, toeboards, baseplates, anchors, and accessories required for a complete and rigid installation.
 - 1. All guardrail systems shall be fabricated from galvanized steel, conforming to the requirements of ASTM A36 "Specification for Structural Steel", with a

paint finish as specified in Section 09900. Galvanizing shall conform to provisions in Section 05020.

2. Metal railings shall be fabricated from 1-1/2 inch Schedule 40 pipe. Metal railing support posts shall be fabricated from 1-1/2 inch Schedule 80 pipe.
 3. The centerline of the top rail shall be 42 inches above the walking surface for level rail. For stair rail, the centerline of the top rail shall be 34 inches above the leading edge of the tread nosing.
 4. Posts
 - a. Maximum horizontal spacing between posts for level rail shall be six feet.
 - b. Maximum horizontal spacing between posts for stair rail shall be five feet.
 5. All rail joints shall be finished flush and shall occur only at supports. Posts shall not interrupt the continuation of the top rail at any point along the railing, including corners and end terminations. The top surface of the top railing shall be smooth and shall not be interrupted by projecting fittings.
 6. Expansion joint splices shall be provided at 30 foot maximum spacing and at all expansion joints in the structure supporting the guardrail.
 7. The guardrail system shall be designed to resist the design loads specified by both OSHA and the Michigan Building Code. In addition to these requirements, the guardrail system shall be designed such that the maximum horizontal deflection at midspan of the top rail shall be $\frac{1}{4}$ " when a concentrated horizontal load of 300 pounds is applied at the midspan of the top rail.
 8. Provide guardrail extensions at top and bottom of stairs and ramps in accordance with the Michigan Building Code.
- B. For metal guardrail, the Contractor shall have the option of providing a system of either an all welded type construction or a component type construction.
1. With both the all welded or component type construction, the baseplates shall be furnished as shown on the Drawings.
 2. Component Type System
 - a. All fittings and brackets shall be designed for stainless steel concealed set screws with internal tyne type connectors.
 - b. Exposed fittings shall be cast or extruded aluminum, or stainless steel to match ladder material, except where corrosion-resistant steel is employed as a standard fabricator's item for use.

3. Welded guardrail may be field assembled using component type fittings as described herein.
- C. Where gates are required in guardrails as shown on the Drawings, they shall be self-closing and shall be provided by the same manufacturer as the guardrail. Gates shall swing away from the opening being protected by the guardrail.

PART 3 - EXECUTION

3.1 FABRICATION

- A. All measurements and dimensions shall be based on field conditions and shall be verified by the Contractor prior to fabrication. Such verification shall include coordination with all adjoining work.
- B. All fabricated work shall be shop fitted together as much as practicable, and delivered to the field, complete and ready for erection.
- C. All work shall be fabricated and installed in a manner that will provide for expansion and contraction, prevent shearing of bolts, screws, and other fastenings, ensure rigidity, and provide a close fit of sections.
- D. Finished members shall conform to the lines, angles, and curves shown on the drawings and shall be free from distortions of any kind.
- E. All shearings shall be neat and accurate, with parts exposed to view neatly finished. Flame cutting is allowed only when performed utilizing a machine.
- F. Concrete anchors and bolts for attachment of guardrail baseplates to supporting members shall conform to Manufacturers recommendation.
- G. All fabricated items shall be shop painted in accordance with Section 09900, Painting.

3.2 INSTALLATION

- A. Assembly and installation of guardrails and railings shall be performed in strict accordance with manufacturer's recommendations.
- B. All guardrails and railings shall be erected square, plumb and true, accurately fitted, adequately anchored in place, and set at proper elevations and positions.

END OF SECTION

SECTION 06100

WOOD NAILERS AND BLOCKING

PART 1 - GENERAL

1.1 RELATED WORK SPECIFIED ELSEWHERE

- A. EPDM Single Ply Roofing System: Section 07530.

1.2 QUALITY ASSURANCE

- A. Mill and Producer's Stamp: Each piece of lumber shall bear a stamp indicating type, grade, mill, and grading agency.
 - 1. Pressure treated wood shall bear a stamp or tag indicating the name of the treating company, year treated, preservative used, the level of treatment, intended use (appropriate AWWPA Standard), and logo of inspecting company.

1.3 STORAGE

- A. Store lumber a minimum of 6 inches off the ground, in a dry, well-ventilated place, protected from the weather.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Lumber: "Standard" Grade Douglas Fir, Hem-Fir, White Pine, Southern Pine, or Spruce-Pine-Fir pressure preservative treated in accordance with the American Wood Preservers Association (AWPA) Standard U1, Commodity Specification A for the requirements listed under Use Category UC2 and kiln dried to 19 percent moisture content after treatment.
- B. Nails, Screws, and Bolts: ASTM A653 Class G185 hot dipped galvanized, zinc or cadmium plated, or silicon bronze.
 - 1. Screws and Bolts for fastening to Aluminum: Stainless steel, Type 304 or 316.
- C. Expansion Anchors: G185 Hot dipped galvanized steel wedge anchors, FS FF-S-325, Group II, Type 4, Class 1.
- D. Toggle Bolts: Cadmium or zinc plated tumble - wing type; FS FF-B-588.
- E. Self Threading Masonry Screws: Zinc Plated; "Tapcon" by Elco Industries, Inc., 1111 Samuelson Rd., PO Box 7009, Rockford, IL 61125-7009, (815) 397-5151.
- F. Separation Membrane for Aluminum Metals: Self adhering, self sealing, rubberized asphalt sheet membrane.
 - 1. Physical Properties:
 - a. Thickness: 40 mils minimum ASTM D 3767 Method A.

- b. Tensile strength: 250 psi ASTM D 412.
 - c. Elongation (ultimate failure of the rubberized asphalt) 250% ASTM D 412 Die C Modified).
 - d. Permeance: 0.05 perms max.) ASTM E 96.
2. "Ice And Water Shield" by W.R. Grace Co., 62 Whittemore Ave., Cambridge, MA 02140, (800) 354-5414; "Deck Guard" by Polyguard Products Inc., P.O. Box 755, Ennis, TX 75120, (800) 541-4994; "MetalSeal" by NEI Advanced Composite Technology, 50 Pine Road, Brentwood, NH, (800) 998-4634.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install nailers and blocking true to line and plane within a tolerance of 1/8 inch in 10 feet.
- B. Fit joints neatly with no more than 1/16 inch space between abutting members.
- C. Do not install nailers or blocking across bonding expansion joints.
- D. Attach nailers and blocking securely as required to properly support the items that will be attached to them.
- E. Space fasteners equally at not more than 16 inches on center and 4 inches from each end of each member, unless noted otherwise. Secure the nailers and blocking with the following types of fasteners:
 - 1. To Cast-In-Place Concrete, Solid Concrete Masonry Units, and Brick: Use expansion anchors or self-threading masonry screws.
 - 2. To Faces of Hollow Concrete Masonry Units: Use toggle bolts.
 - 3. To Tops of Hollow Concrete Masonry Units: Use anchor bolts extending to course below, embedded in 3000 psi concrete filled cores.
 - 4. To Wood: Use nails or screws.
 - 5. To Metal: Use bolts or self-tapping screws.
- F. Countersink fasteners if they interfere with the proper installation of items to be attached to the nailers and blocking.

3.2 APPLICATION OF SEPARATION MEMBRANE

- A. Installing Separation Membrane
 - 1. Install 1 ply of underlayment over the entire horizontal and vertical surface of pressure treated wood nailers and blocking lapping each ply 2 inches over the preceding ply so that no aluminum material comes in contact with pressure treated wood.

END OF SECTION

SECTION 07530

EPDM SINGLE-PLY MEMBRANE ROOFING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This Section includes the following:
 - 1. Adhered sheet roofing.
 - 2. Vapor retarder.
 - 3. Roof Insulation.
 - 3. Walkway pads.

1.2 RELATED SECTIONS

- A. Section 07600 – Flashing and Sheet Metal.
- B. Section 07900 – Joint Sealants.

1.3 REFERENCES

- A. ASTM D4637, EPDM Sheet Used in Single-Ply Roof Membrane
- B. ASTM D4811, Nonvulcanized (Uncured) Rubber Sheet Used as Roof Flashing
- C. ASTM D6369, Design of Standard Flashing Details for EPDM Roof Membranes
- D. ASTM E108, Fire Tests of Roof Coverings
- E. FM 4450, Class 1 Insulated Steel Deck Roofs
- F. FM 4470, Single-Ply, Polymer-Modified Bitumen Sheet, Built-up Roof (BUR), and Liquid Applied Roof Assemblies for Use in Class 1 and Noncombustible Roof Deck Construction.
- G. National Roofing Contractors Association, NRCA Roofing Manual
- H. ANSI/SPRI WD-1, Wind Design Standard Practice for Roofing Assemblies
- I. UL 790, Standard Test Methods for Fire Tests of Roof Coverings
- J. UL RMSD, Roofing Materials and Systems Directory

1.4 DEFINITIONS

- A. Roofing Terminology: Refer to ASTM D1079 for definition of terms related to roofing work not otherwise defined in this Section.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Install sheet membrane roofing and base flashing that are watertight; will not

permit the passage of liquid water; and will withstand wind loads, thermally induced movement, and exposure to weather without failure.

- B. Material Compatibility: Provide roofing materials that are compatible with one another under conditions of service and application required, as demonstrated by roofing system manufacturer based on testing and field experience.
- C. FM Listing: Provide sheet membrane, base flashings, and component materials that meet requirements of FM 4450 and FM 4470 as part of a roofing system and that are listed in FM's "Approval Guide" for Class 1 or noncombustible construction, as applicable. Identify materials with FM markings.
 - 1. Roofing system shall comply with the following:
 - a. Fire/Windstorm Classification: Class 1A-90.

1.6 SUBMITTALS

- A. Product Data: For each type of roofing product specified. Include data substantiating that materials comply with requirements.
- B. Shop Drawings: Include plans, sections, and details of the following:
 - 1. Base flashings and membrane terminations.
 - 2. Tapered insulation, including slopes.
 - 3. Expansion joint details.
- C. Samples for Verification: Of the following products:
 - 1. 12-by-12-inch square of sheet roofing, of color specified, including T-shaped side and end lap seam.
 - 2. 12-by-12-inch square of roof insulation.
 - 3. 12-by-12-inch square of walkway pads or rolls.
 - 4. 12-inch length of metal termination bars.
- D. Installer Certificates: Signed by roofing system manufacturer certifying that Installer is approved, authorized, or licensed by manufacturer to install specified roofing system.
- E. Manufacturer Certificates: Signed by roofing manufacturer certifying that the roofing system complies with requirements specified in the "Performance Requirements" Article. Upon request, submit evidence of meeting requirements.
- F. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- G. Product Test Reports: Based on evaluation of tests performed by manufacturer and witnessed by a qualified independent testing agency, indicate compliance of components of roofing system with requirements based on comprehensive testing of current product compositions.

- H. Research/Evaluation Reports: Evidence of roofing system's compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
- I. Maintenance Data: For roofing system to include in the maintenance manuals specified in Division 1.
- J. Warranty: Sample copy of standard roofing system manufacturer's warranty stating obligations, remedies, limitations, and exclusions of warranty.
- K. Inspection Report: Copy of roofing system manufacturer's inspection report of completed roofing installation.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced installer to perform work of this Section who has specialized in installing roofing similar to that required for this Project and who is approved, authorized, or licensed by the roofing system manufacturer to install manufacturer's product.
- B. Fire-Test-Response Characteristics: Provide roofing materials with the fire-test-response characteristics indicated as determined by testing identical products per test method indicated below by UL, FM, or another testing and inspecting agency acceptable to authorities having jurisdiction. Identify materials with appropriate markings of applicable testing and inspecting agency.
 - 1. Exterior Fire-Test Exposure: Class A; ASTM E 108, for application and slopes indicated.
- C. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site. Meet with the same participants and review the same items listed for the preinstallation conference. In addition, review status of submittals and coordination of work related to roof construction. Notify participants at least 5 working days before conference.
- D. Preinstallation Conference: Before installing roofing system, conduct conference at Project site to comply with requirements of Division 1 Section "Project Meetings." Notify participants at least 5 working days before conference.
 - 1. Meet with Owner; Architect; Construction Manager; testing and inspecting agency representative; roofing Installer; roofing system manufacturer's representative; deck Installer; and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
 - 2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
 - 3. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
 - 4. Review loading limitations of deck during and after roofing.
 - 5. Review flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that will affect roofing.

6. Review governing regulations and requirements for insurance, certificates, and inspection and testing, if applicable.
7. Review temporary protection requirements for roofing system during and after installation.
8. Review roof observation and repair procedures after roofing installation.
9. Document proceedings, including corrective measures or actions required, and furnish copy of record to each participant.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, and directions for storing and mixing with other components.
- B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.
 1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.
- C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.
- D. Handle and store roofing materials and place equipment in a manner to avoid permanent deflection of deck.

1.9 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with roofing work only when existing and forecasted weather conditions permit roofing to be installed according to manufacturers' written instructions and warranty requirements.

1.10 WARRANTY

- A. General Warranty: The warranties specified in this Article shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by the Contractor under requirements of the Contract Documents.
- B. Standard Roofing Manufacturer's Warranty: Submit a written warranty, without monetary limitation, signed by roofing system manufacturer agreeing to promptly repair leaks resulting from defects in materials or workmanship for the following warranty period:
 1. Warranty Period: 30 years.
 2. Provide a Warranty with protection against puncture, hail and wind (100 mph).

PART 2 - PRODUCTS

MACK POOL ROOF REPLACEMENT

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. EPDM Adhered Membrane System:
 - a. Carlisle Syntec Systems; Carlisle Corp.
 - b. Firestone Building Products Co.

2.2 EPDM SHEET

- A. EPDM Sheet: Uniform, flexible sheet formed from a terpolymer of ethylene-propylene-diene, complying with ASTM D4637, Type 1, of the following grade, class, thickness, backing, and exposed face color:
 - 1. Grade and Class: Grade 1 or 2 and Class SR, scrim or fabric internal reinforced.
 - 2. Thickness: 90 mils, nominal.
 - 3. Backing: Unbacked.
 - 4. Exposed Face Color: Black.

2.3 AUXILLARY MATERIALS

- A. General: Furnish auxiliary materials recommended by roofing system manufacturer for intended use and compatible with EPDM membrane roofing.
 - 1. Furnish liquid-type auxiliary materials that meet VOC limits of authorities having jurisdiction.
- B. Sheet Flashing: 90-mil- thick EPDM, uncured or cured, according to application.
- C. Epichlorohydrin Sheet: 90-mil- thick, unreinforced flexible sheet with the following properties as determined per ASTM test method indicated:
 - 1. Tensile Strength: 1300 psi; ASTM D412.
 - 2. Ultimate Elongation: 200 percent; ASTM D412.
 - 3. Tear Resistance: 150 lbf/in.; ASTM D412.
 - 4. Brittleness Temperature: Minus 20 deg F; ASTM D746.
 - 5. Resistance to Ozone Aging: No cracks after 168 hours' exposure of 50 percent elongated sample at 104 deg F and 100-pphm ozone; ASTM D1149.
 - 6. Resistance to Oil Aging: 15 percent maximum mass change after 168 hours' immersion in diesel fuel No. 2 at 158 deg F; ASTM D471.
- D. Bonding Adhesive: Manufacturer's standard bonding adhesive.
- E. Splice Adhesive and Cleaner: Single-component butyl splicing adhesive and solvent-

based splice cleaner.

- F. Splice Primer and Tape: Manufacturer's standard synthetic rubber polymer primer and 3-inch wide minimum, butyl splice tape with release film.
- G. Lap Sealant: Manufacturer's standard single-component sealant.
- H. Water Cutoff Mastic: Manufacturer's standard butyl mastic sealant.
- I. Metal Termination Bars: Manufacturer's standard aluminum bars, approximately 1 inch wide, roll formed and prepunched.
- J. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions of FM 4470, designed for fastening sheet to substrate, and acceptable to roofing system manufacturer.
- K. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, in-seam sealants, termination reglets, and other accessories recommended by roofing system manufacturer for intended use.

2.4 VAPOR RETARDER

- A. Polyethylene Vapor Retarder: ASTM D 4397, 6 mils thick, minimum, with maximum permeance rating of 0.13 perm.
 - 1. Adhesive: Manufacturer's standard roofing adhesive, FM approved for vapor-retarder application.

2.5 INSULATION MATERIALS

- A. General: Provide preformed roof insulation boards that comply with requirements, selected from manufacturer's standard sizes and of thicknesses indicated.
 - 1. Provide preformed, tapered insulation boards where indicated for sloping to drain. Fabricate with the following taper:
 - a. 1/4 inch per 12 inches, unless otherwise indicated.
 - 2. Provide preformed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricate to slopes indicated.
- B. Polyisocyanurate Board Insulation: Rigid, cellular polyisocyanurate thermal insulation with core formed by using HCFCs as blowing agents to comply with ASTM C1289, classified by facer type as follows:
 - 1. Facer Type: Type II, felt or glass-fiber mat on both major surfaces.
 - 2. Compressive Strength, Nominal ASTM D 1621 20psi.
 - 3. Moisture Vapor Transmission ASTM E 96 <1.0 perm.

2.6 INSULATION ACCESSORIES

- A. General: Furnish roof insulation accessories recommended by insulation manufacturer for intended use and compatible with sheet roofing material.
- B. Fasteners: Factory-coated steel fasteners and metal or plastic plates meeting corrosion-resistance provisions of FM 4470, designed for fastening roof insulation to substrate, and acceptable to roofing system manufacturer.
- C. Thermal Barrier: Dens Deck Roof Board or equivalent. Thickness 0.25 inch.
- D. Cover Board: DensDeck Roof Board or equivalent. Thickness 0.50 inch.
- E. Protection Mat: Woven or nonwoven polypropylene, polyolefin, or polyester fabric mat, water permeable and resistant to ultraviolet degradation, type and weight as recommended by roofing system manufacturer for application.

2.7 ASPHALT MATERIALS
NOT USED

2.8 WALKWAYS

- A. Walkway Pads: Factory-formed, nonporous, heavy-duty, solid-rubber, slip-resisting, surface-textured walkway pads, approximately 3/16 inch thick, and acceptable to roofing system manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions under which roofing will be applied, with Installer present, for compliance with requirements.
- B. Verify that roof openings and penetrations are in place and set and braced and that roof drains are properly clamped into position.
- C. Verify that wood nailers are in place and secured and match thicknesses of insulation required.
- D. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Clean substrate of dust, debris, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.
- B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.
- C. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of the roofing system at the end of the workday or when rain is forecast. Remove and discard temporary seals before beginning work on adjoining roofing.

3.3 VAPOR-BARRIER MEMBRANE INSTALLATION

- A. Apply the composite vapor barrier in accordance with the manufacturer's written instructions. Sheets shall be rolled in with a 75 lb. roller to fully mate each roll to the substrate including lap areas.
 - 1. Install with a minimum of 3" side laps and 6" end laps.
- B. Completely seal vapor retarder at terminations, obstructions, and penetrations.

3.4 INSULATION INSTALLATION

- A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at the end of the workday.
- B. Comply with roofing system manufacturer's written instructions for installing roof insulation.
- C. Install tapered insulation under area of roofing to conform to slopes indicated and to Shop Drawings.
- D. Install one or more layers of insulation under area of roofing to achieve required thickness. Where overall insulation thickness is 2 inches or greater, install required thickness in 2 or more layers with joints of each succeeding layer staggered from joints of previous layer a minimum of 6 inches in each direction.
- E. Trim surface of insulation where necessary at roof drains so completed surface is flush and does not restrict flow of water.
- F. Install insulation with long joints of insulation in a continuous straight line with end joints staggered between rows, abutting edges and ends between boards. Fill gaps exceeding 1/4 inch with insulation.
 - 1. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
- G. Attached Insulation: Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft. and allow primer to dry. Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature and at a rate required by insulation manufacturer.
- H. Attached Insulation: Secure first layer of insulation to deck using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to deck type indicated. Install subsequent layers of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature and at a rate required by insulation manufacturer.
 - 1. Fasten insulation according to requirements of FM's "Approval Guide" for specified Windstorm Resistance Classification and the insulation and roofing system manufacturers' written instructions.
- I. Install cover boards over insulation according with the manufacturer's written instructions with long joints in continuous straight lines with end joints staggered between rows. Loosely butt cover boards together and fasten to roof deck according to roofing system manufacturer's written instructions.

3.5 ADHERED SHEET INSTALLATION

- A. Install EPDM sheet over area to receive roofing according to roofing system manufacturer's written instructions. Unroll sheet and allow to relax for a minimum of 30 minutes.
- B. Start installation of sheet in presence of roofing system manufacturer's technical personnel.
- C. Accurately align sheets and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.
- D. Apply bonding adhesive to substrate and underside of sheet at rate required by manufacturer and allow to partially dry. Do not apply bonding adhesive to splice area of sheet.
- E. Mechanically or adhesively fasten sheet securely at terminations and perimeter of roofing.
- F. Apply roofing sheet with side laps shingled with slope of roof deck where possible.
- G. Spread sealant or mastic bed over deck drain flange at deck drains and securely seal roofing sheet in place with clamping ring.
- H. Apply epichlorohydrin sheet over EPDM sheet at locations indicated according to roofing system manufacturer's written instructions.

3.6 SEAM INSTALLATION

- A. Clean both faces of splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet terminations.
- B. Clean and prime both faces of splice areas, apply splice tape, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet terminations.
- C. Repair tears, voids, and lapped seams in roofing that does not meet requirements.

3.7 FLASHING INSTALLATION

- A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.
- B. Apply bonding adhesive to substrate and underside of flashing sheet at required rate and allow to partially dry. Do not apply bonding adhesive to seam area of flashing.
- C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing as recommended by manufacturer.
- D. Clean splice areas, apply splicing cement, and firmly roll side and end laps of overlapping sheets according to manufacturer's written instructions to ensure a watertight seam installation. Apply lap sealant and seal exposed edges of sheet flashing terminations.

- E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.8 WALKWAY INSTALLATION

- A. Walkways: Install walkway products typically around roof top units and to natural connections to rooftop access via doors, ladders or hatches and in locations indicated. Adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

- A. Roof Drain Test
 - 1. After completing roofing but prior to acceptance, perform the following test for watertightness. Plug roof drains and fill with water to edge of drain sump for 8 hours. Retrofit roof drains must conform to ANSI/SPRI RD-1. Do not plug secondary overflow drains at the same time as adjacent primary drain. To ensure some drainage from roof, do not test all drains at same time. Measure water at beginning and end of the test period. When precipitation occurs during test period, repeat test. When water level falls, remove water, thoroughly dry, and inspect installation; repair or replace roofing at drain to provide for a properly installed watertight flashing seal. Repeat test until there is no water leakage.
- B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion and submit report to Architect.
 - 1. Notify Engineer or Owner 48 hours in advance of the date and time of inspection.

3.10 PROTECTING AND CLEANING

- A. Protect sheet membrane roofing from damage and wear during remainder of construction period. When remaining construction will not affect or endanger roofing, inspect roofing for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.
- B. Correct deficiencies in or remove roofing that does not comply with requirements, repair substrates, reinstall roofing, and repair sheet flashings to a condition free of damage and deterioration at the time of Substantial Completion and according to warranty requirements.
- C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by manufacturer of affected construction.

END OF SECTION

SECTION 07600

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

- A. Provide all flashing, trim and sheet metal Work as indicated on the Drawings, as required for the completed Work, and as specified herein. The Work may include, but shall not be limited to, the following:
 - 1. Roof Flashings (various types)
 - 2. Wall Flashings (various types)
 - 3. Shop-Formed Gravel Stops
 - 4. Shop-Formed Copings
 - 5. Flashing at expansion joints.
 - 6. Flashing at roof mounted equipment and roof penetrations.

1.2 REFERENCES

- A. References and industry standards listed in this Section are applicable to the Work. Unless more restrictive criteria or differing requirements are explicitly stated in the Specifications, or mandated by governing codes or regulations, the recommendations, suggestions, and requirements described in the referenced standards shall be deemed mandatory and applicable to the Work.
- B. Sheet Metal and Air Conditioning Contractors National Association (SMACNA).
- C. American Society for Testing and Materials (ASTM).
- D. Federal Specifications (FS).

1.3 SUBMITTALS

- A. Shop Drawings
 - 1. Show the manner of forming, jointing, and securing the metal flashings and trim. Include expansion joint connections, and the method of forming waterproof connections to adjoining construction.
- B. Product Data
 - 1. Catalog sheets, specifications, installation instructions for each item specified except for shop or job formed items, solder, flux, and bituminous coating.
- C. Samples
 - 1. Materials for Flashings: One 6" sq piece, for each type material specified.
 - 2. Anchors: Two, each type required.

3. Cap Flashings: Full section, 6" long.
 4. Gravel Stop: Full section 6" long.
 5. Coping: Full section, 12" long.
- D. Color samples: Color chart showing standard available color finishes for selected metal products.
- E. Guarantee
- F. Certificates of Qualifications

1.4 QUALITY ASSURANCE

- A. Except as otherwise shown or specified, comply with applicable recommendations, details, and standards of CDA, and SMACNA.
- B. All metal Work shall be ink-stamped at intervals, identifying Manufacturer, type metal, and gage or thickness.
- C. Manufacturer's Recommendations
1. For factory fabricated items, follow the manufacturer's recommendations and installation instructions unless specifically shown or specified otherwise.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products of this Section in such manner to protect them from damage.

1.6 PROJECT CONDITIONS

- A. Do not execute the Work of this Section unless the Engineer's Representative is present, unless otherwise directed.
- B. Make the roof and all uncompleted flashings watertight at the end of each work day.

1.7 GUARANTEE

- A. The Contractor shall provide a two (2) year written guarantee, covering the flashing and sheet metal materials and workmanship. Should any defects occur during the stated period, they shall be corrected immediately, and all damage caused by such defects shall be corrected; all corrective Work shall be at the Contractor's expense.

PART 2 - PRODUCTS

2.1 MATERIALS FOR FLASHING FABRICATION

- A. Galvanized Steel Sheet: Commercial quality hot dip galvanized steel sheet, ASTM A 525 and ASTM A 526.
1. Mill phosphatized by the sheet manufacturer to prepare the surface for painting.

- B. Prefinished Galvanized Steel Sheet: Commercial quality, extra smooth, hot dip galvanized, mill phosphatized galvanized steel sheet, ASTM A 525/526.
 - 1. Finish: Kynar paint finish). Reverse side primed. Shipped with strippable protective tape.
 - 2. Color: As selected by the Director's Representative from manufacturer's standard colors.
- C. Aluminum Sheet: Standard mill finish aluminum sheet. ASTM B 209, 3003-H14 alloy.
- D. Prefinished Aluminum Sheet: ASTM B 209, 3003-H14 alloy.
 - 1. Finish: Kynar paint finish, Reverse side primed. Shipped with strippable protective tape.
 - 2. Color: To match existing adjacent

2.2 MANUFACTURED MATERIALS

- A. Factory Fabricated Formed Coping: Complete system including .063 inch aluminum coping, anchor plates, joint drainage system, concealed joint covers, corners, and intersections, and all other accessory components.
 - 1. Finish: Kynar paint finish, Reverse side primed. Shipped with strippable protective tape.
 - 2. Color: To match existing adjacent

2.3 FASTENERS

- A. Nails
 - 1. "Stronghold" type large flat head roofing nail.
 - a. For Aluminum: Hard aluminum alloy or Stainless steel
 - b. For Stainless Steel: Stainless steel.
- B. Screws, Bolts, and other Fastening Accessories
 - 1. For Aluminum: Hard aluminum alloy or Stainless steel
 - 2. For Stainless Steel: Stainless steel.
- C. Anchors
 - 1. Provide one of the following types:
 - a. Hammer driven anchors, consisting of a stainless steel drive pin and a corrosion resistant metal expansion shield inserted thru a stainless steel disc with an EPDM sealing washer.
 - b. Self-tapping, corrosion resistant, concrete and masonry screw inserted thru a stainless steel disc with an EPDM sealing washer.

2.4 MISCELLANEOUS MATERIALS

- A. Bituminous Coating (for separating dissimilar metals):
 - 1. FS TT-C494.
- B. Type 2 Sealant (For concealed sealant joints of thru-wall cap receivers and other areas which require concealed sealant).
 - 1. One part butyl rubber sealant; Tremco Reglet Joint Sealant, Pecora BC-158, PTI 707, or Woodmont chem-Calk 300.

2.5 FABRICATION

- A. Where practicable, form and fabricate sheet metal Work in the factory or shop. Produce bends and profiles accurately to the indicated shapes. Where not indicated or specified, follow the applicable requirements of the reference standards listed in PART 1.
- B. Shop-Formed Coping:
 - 1. Galvanized Steel: 24 ga (.023 inch).
 - 2. Prefinished Galvanized Steel: 24 ga (.023 inch).
 - 3. Aluminum: .040 inch.
 - 4. Prefinished Aluminum: .040 inch.
- C. Factory Fabricated Formed Coping:

Complete system including 0.063" aluminum coping, anchor plates, joint drainage system, concealed joint covers and all other accessory components.

 - 1. Finish: Kynar paint finish, Reverse side primed.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Coordinate the work of this Section with other Work for the correct sequencing of items which make up the entire system of weatherproofing or waterproofing.

3.2 PREPARATION

- A. Do not install the Work of this Section unless all necessary nailers, blocking and other supporting components have been provided.
- B. Do not install the Work of this Section unless all substrates are clean and dry.

3.3 INSTALLATION

- A. Isolation
 - 1. Separate dissimilar metals from each other with bituminous coating.

B. Dressing Down Existing Cap Flashing

1. Turn up all cap flashings as required to perform the Work. Upon completion of the Work, dress down all disturbed cap flashings so they lie flat against the base flashing.
2. Secure the cap flashing to the wall surface with fasteners spaced 18" oc.
3. Install matching metal patches at corners of cap flashings which have been cut to perform the Work. Lap the patches a minimum of 1" on each side of the cap flashing.
 - a. Secure the patch by pop-riveting or by soldering.

C. Installing Formed Metal Coping

1. Form the coping into lengths not exceeding 8'-0".
2. Join coping sections with 1-1/2" loose locked seams filled with Type 3 sealant.
3. Hook the front and back edges of the coping over continuous metal edge strips. Nail the edge strip 6" oc.

D. Installing Factory Fabricated Formed Metal Coping

1. Install in accordance with the manufacturer's written instructions unless shown or specified otherwise.

END OF SECTION

SECTION 07900

JOINT SEALANTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Contractor shall provide all labor, materials, tools, equipment and incidentals as shown, specified and required to furnish and install caulking and sealants.

1.2 RELATED SECTIONS

EPDM Single-Ply Membrane Roofing	Section 07530
Flashing and Sheet Metal	Section 07600

1.3 REFERENCES

- A. ASTM C510, Test Method for Staining and Color Change of Single-or Multicomponent Joint Sealants.
- B. ASTM C661, Test Method for Indentation Hardness of Elastomeric-Type Sealants by Means of a Durometer.
- C. ASTM C793, Test Method for Effects of Accelerated Weathering on Elastomeric Joint Sealants.
- D. ASTM C794, Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.
- E. ASTM C920, Standard Specification for Elastomeric Joint Sealants
- F. Federal Specification, FS TT-S-00227, Sealing Compound - Elastomeric Type, Multi-component for Caulking, Sealing, and Glazing in Buildings and Other Structures.
- G. Federal Specification, FS TT-S-001657 Sealing Compound - Single Component, Butyl Rubber Based, Solvent Release Type.

1.4 PERFORMANCE REQUIREMENTS

- A. Extent of each type of caulking and sealant includes the following:
 - 1. All joints between concrete members and masonry.
 - 2. All concrete to concrete joints.
 - 3. All metal to metal joints.
 - 4. All joints between masonry and metal.
 - 5. All expansion joints in masonry and concrete.
 - 6. All control joints.
 - 7. All sound-sealed and air-sealed joints.
 - 8. As an exposed-to-view finish on the exposed face of all fire-rated sealants.

9. On both sides of all terminations of all construction systems, specified to receive caulking and sealants, where construction system remains exposed to view in the finished Work.
10. All isolation joints between equipment and other items.
11. All joints where construction systems are discontinuous or inherently non-watertight.
12. All locations whether or not shown, required to render the building watertight, except where a construction system is specified or shown as not relying upon the use of sealants in order to achieve weather-and watertightness.

1.5 SUBMITTALS

A. Samples:

1. Each type of actual cured material samples of each caulking and sealant specified, 3-inches long, in each of the manufacturer's standard colors.
2. Samples will be reviewed by Engineer for color and texture only. Compliance with other requirements is the responsibility of Contractor.

B. Shop Drawings:

1. Copies of manufacturer's specifications, recommendations and installation instructions for each type of sealant, caulking compound and associated miscellaneous material required. Include manufacturer's published data, indicating that each material complies with the requirements and is intended for the applications shown.
2. Pre-Installation Meeting report, as specified.

C. Test Reports:

1. Compatibility tests for substrates, based on adhesion-in-peel standard test procedures and FS TT-S-0027.
2. Certified laboratory test reports indicating conformance with the requirements.

D. Guarantee:

1. Copies of written guarantee agreeing to repair or replace sealants which fail to perform as specified.

1.6 WARRANTY

- A. Provide a written guarantee agreeing to repair or replace sealants which fail to perform as air-tight and watertight joints; or fail in joint adhesion, cohesion, abrasion resistance, weather resistance, extrusion resistance, migration resistance, stain resistance, or general durability; or appear to deteriorate in any other manner not clearly specified by submitted manufacturer's data, as an inherent quality of the material for the exposure indicated. Provide guarantee signed by installer and Contractor. Provide guarantee period of two years from Final Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Type of product used shall be per the Sealant Schedule.
- B. Sealants:
 - 1. Type 1: Multi-component, non-sag, low-modulus polyurethane rubber sealant meeting ASTM C920, Type M, Grade NS, Class 25, use NT, M, A, and O. Capable of withstanding 50% in extension or compression such as Sikaflex-2C NS/SL, Sika Corporation Lyndhurst, NY, or Sonolastic SL-1, Sonneborn, Minneapolis, MN, or DynaTrol II by Pecora Corporation.
 - 2. Type 2: Single component polyurethane sealant meeting ASTM C920, Type S, Grade NS, Class 25, Use NT, M, A, and O. Capable of withstanding 25% in extension or compression such as Magnum NS-100, Tamms Industries, or Sikaflex 1A, Sika Corporation, Lyndhurst, NY, DynaTrol 1-XL by Pecora Corporation.
 - 3. Type 3: Single component, low-modulus moisture curing silicone meeting ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, and A. Capable of withstanding 50% extension and compression. Pecora 890 by Pecora Corporation or equal as approved by Engineer and Owner.
 - 4. Type 4: Single component, mildew resistant, moisture-curing silicone meeting ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, and A. Pecora 898 by Pecora Corporation or equal as approved by Engineer and Owner.
 - 5. Type 5: Single component, acrylic latex meeting ASTM C834. AC-20+ Silicone by Pecora Corporation or equal as approved by Engineer and Owner.
 - 6. Type 6: High grade butyl sealant meeting Federal Specification TT-S-00-1657. BC-158 by Pecora Corporation or equal as approved by Engineer and Owner.
 - 7. Type 7: Multi-component chemical resistant polysulfide sealant conforming to ASTM C920, Type M, Grade NS, Class 25 such as Sonolastic Two-part, Sonneborn, Minneapolis, MN, Hornflex-L, Tamms, Beltsville, MD, or Cormax PSC, DuPont, Synthacaulk GC2+ by Pecora Corporation.
 - 8. Type 8: Nonsag, multi component, traffic grate polyurethane sealant meeting ASTM C920, Type 19, Grade NS, Class 25, use T, M, A, and O. DynaTread by Pecora Corporation.
- B. Primer: Non-staining primer recommended by sealant manufacturer for the substrates on this project.
- C. Backer Rod: Closed cell foam, nonreactive with caulking materials, non-oily, and approved by the sealant manufacturer. Minimum density shall be 3.24 pounds per cubic foot. Use no asphalt or bitumen-impregnated fiber with sealants.
- D. Joint Cleaner: Recommended by sealant or caulking compound manufacturer.
- E. Bond breaker: Either polyethylene film or plastic tape as recommended by the sealant manufacturer.

- F. Color: Where manufacturer's standard colors do not closely match materials being sealed, provide a custom color.

PART 3 - EXECUTION

3.1 INSPECTION

- A. Contractor and installer shall examine joint surfaces, substrates, backing, and anchorage of units forming sealant rabbet, and the conditions under which the caulking and sealant Work is to be performed, and notify Engineer, in writing, of any conditions detrimental to the proper and timely completion of the Work and performance of the sealants. Do not proceed with the caulking and sealant Work until unsatisfactory conditions have been corrected in a manner acceptable to Engineer.

3.2 PREPARATION

- A. Protect finished surfaces adjoining by using masking tape or other suitable materials.
- B. Clean joint surfaces immediately before installation of sealant compound. Remove dirt, weakly adhering coatings, moisture and other substances which would interfere with bonds of sealant compound as recommended by sealant manufacturer's written instructions as shown on approved Shop Drawings.
- C. Etch concrete and masonry joint surfaces to remove excess alkalinity, unless sealant manufacturer's written instructions, as shown on approved Shop Drawings, indicate that alkalinity does not interfere with sealant bond and performance.
 - 1. Etch with five percent solution of muriatic acid.
 - 2. Neutralize with dilute ammonia solution.
 - 3. Rinse thoroughly with water and allow to dry before sealant installation.
- D. If necessary, clean porous materials such as concrete and masonry by grinding, sand blasting or mechanical abrading. Blow out joints with oil-free compressed air, or by vacuuming joints prior to application of primer or sealant.
- E. Roughen joint surfaces on vitreous coated and similar non-porous materials, wherever sealant manufacturer's data indicates lower bond strength than for porous surfaces. Rub with fine abrasive cloth or steel wool to produce a dull sheen.

3.3 INSTALLATION

- A. Comply with sealant manufacturer's written instructions except where more stringent requirements are shown or specified and except where manufacturer's technical representative directs otherwise; but only as approved by Engineer.
- B. Prime or seal the joint surfaces as shown on approved Shop Drawings. Do not allow prime or sealer to spill or migrate onto adjoining surfaces. Allow primer to dry prior to application of sealants.
- C. Apply masking tape before installation of primer, in continuous strips in alignment with the joint edge to produce sharp, clean interface with adjoining materials. Remove tape immediately after joints have been sealed and tooled as directed.

- D. Do not install sealants without backer rods or bond breaker tape.
- E. Roll the backer-rod stock into the joint to avoid lengthwise stretching. Do not twist, braid, puncture or prime backer-rods.
- F. Employ only proven installation techniques, which will ensure that sealants will be deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of the joint bond surfaces equally on opposite sides. Except as otherwise indicated, fill sealant rabbet to a slightly concave surface slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and a vertical surface, fill joint to form a slight cove, so that joint will not trap moisture and dirt.
- G. Install sealants to depths as recommended by the sealant manufacturer but within the following general limitations, measured at the center (thin) section of the bead.
 - 1. For horizontal joints in sidewalks, pavements and similar locations sealed with elastomeric sealants and subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75 percent of joint width, but not more than 5/8-inch deep or less than 3/8-inch deep.
 - 2. For vertical joints subjected to normal movement and sealed with elastomeric sealants, but not subject to traffic, fill joints to a depth equal to 50 percent of joint width, but not more than 1/2-inch deep or less than 1/4-inch deep.
- H. Remove excess and spillage of compounds promptly as the Work progresses.
- I. Cure caulking and sealant compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength and surface durability.

3.4 FIELD QUALITY CONTROL

- A. Where questions of compatibility of sealants and substrate arise, the sealant manufacturer shall test the substrate in question for compatibility with the specified sealant and report his findings, along with recommendations, to Engineer.
- B. Do not proceed with installation of elastomeric sealants over joint surfaces which have been painted, lacquered, waterproofed or treated with water repellent or other treatment or coating unless a laboratory test for durability (adhesion), in compliance with FS TT-S-00227 has successfully demonstrated that sealant bond is not impaired by the coating or treatment. If laboratory test has not been performed, or shows bond interference, remove coating or treatment from joint surfaces before installing sealant.
- C. After nominal cure of exterior joint sealants which are exposed to the weather, test for water leaks. Flood the joint exposure with water directed from a 3/4-inch diameter garden hose, without nozzle, held perpendicular to wall face, 2 feet -0 inch from joint and connected to a water system with 30 psi minimum normal water pressure. Move stream of water along joint at an approximate rate of 20 feet per minute.
- D. Test approximately five percent of total joint system, in locations which are typical of every joint condition, and which can be inspected easily for leakage on opposite face. Conduct test in the presence of Engineer, who will determine the actual percentage of joints to be tested and the actual period of exposure to water from the hose, based upon the extent of observed leakage, or lack thereof.

- E. Where nature of observed leakage indicates the possibility of inadequate joint bond strength, Engineer may direct that additional testing be performed at a time when joints are fully cured, and before Substantial Completion of the Work.
- F. Do not paint sealant, unless recommended by sealant and paint manufacturer.

3.5 ADJUSTING

- A. Allow sealants to cure and remove protective edging, of doors, louvers, saddles windows etc. as directed by the Owner.
- B. Repair sealant installation at leaks or, if leakage is excessive, replace sealant installation.

3.6 CLEANING

- A. Clean adjacent surfaces of sealant and soiling resulting from the Work. Use solvent or cleaning agent recommended by the sealant manufacturer. Leave all finish Work in a neat and clean condition.
- B. Remove misplaced sealant compounds promptly using methods and materials recommended by the manufacturer, as the work progresses.

Sealant Schedule

Application	Sealant	Color
Vertical and horizontal joints bordered on both sides by concrete, masonry, precast concrete, natural stone or other porous building material.	Type 2	To closely match adjacent surfaces or mortar and as selected by the Owner.
Vertical and horizontal joints bordered on both sides by painted metals, anodized aluminum, mill finished aluminum, PVC, glass or other non-porous building material.	Type 3	To closely match adjacent surfaces and as selected by the Owner.
Masonry expansion and control joints less than 1¼" wide.	Type 2	To closely match adjacent surfaces and as selected by the Owner.
Masonry expansion and control joints equal or greater than 1 ¼ inches wide.	Type 1	To closely match adjacent surfaces and as selected by the Owner.
Interior – wood trim and finish joints.	Type 5	Color to be selected by Owner
Sanitary areas, joints in ceramic tile, around plumbing fixtures, countertops, and back splashes. See Note 1.	Type 4	To closely match adjacent surfaces and as selected by the Owner.
Perimeter sealing of doors, windows, louvers, piping, ducts, and electrical conduit. See Note 2.	Type 2 or Type 3	To closely match adjacent surfaces and as selected by the Owner.

Application	Sealant	Color
Below thresholds.	Type 6	Manufacturer's standard
Submerged in liquids. See Note 4.	Type 1	Manufacturer's standard
Submerged in liquids with high concentration of chlorine (> 2 ppm).	Type 7	Manufacturer's standard
Horizontal Joints exposed to vehicular or pedestrian traffic.	Type 8	To closely match adjacent surfaces.
Other joints indicated on the drawings or customarily sealed but not listed.	Type recommended by manufacturer	To closely match adjacent surfaces and as selected by the Owner.

Notes:

1. Sealant for Laboratory Countertop shall be as recommended by countertop manufacturer.
2. Provide UL approved sealants for penetrations thru fire-rated walls and as specified in Section 07270.
3. Sealants which will come in contact with potable water shall meet the requirements of NSF 61.
4. Where sealant will be immersed in liquid chemicals verify compatibility prior to installation of sealant.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

1.1 DESCRIPTION

A. It is the intent of this Section that all painting necessary to result in a complete, finished appearing facility be accomplished. As part of the work of this Section, prepare surfaces that are to be painted and furnish and apply paint materials. Paint schedules follow the text of this Section and define the surface preparation and coating systems required to paint the various types of surfaces that are to be painted. The Paint Application Table below identifies the areas to receive the paint systems specified in the paint schedules. For items or areas not listed in the Paint Application Table, consult the Engineer for the proper system to be used. Exclusion from the Paint Application table does not necessarily indicate that an item or area does not require painting.

B. Acceptable manufacturers shall be Tnemec and Carboline.

1. The paint schedules that follow this specification have been developed for Tnemec products. If Carboline products are to be used, submit schedules describing Carboline's equal products and colors for review and approval.

C. Paint Application Table

Schedule M1: Exterior Metal

Paint steel lintels, and touch-up of exterior hollow metal doors and frames, ladder and guard rail and all related work.

Maximum 2 colors.

Schedule M2: Interior Metal

Paint the following interior metal items: metal roof decking, steel lintels, hollow metal door frames, and all related work.

Painting of piping shall occur after the piping is insulated. Any piping covered by a support or hanger shall be painted before placement on the support or in the hanger, no unpainted sections of pipe shall be allowed.

Maximum 3 colors.

Schedule M7: Pretreatment of Galvanized and Nonferrous Metals

Pretreating is required on copper and galvanized pipe, aluminum items that will be painted under schedules M1 and M2, items in contact with concrete or dissimilar metals, and on damaged galvanizing of galvanized metal items prior to touch-up painting. Pretreating is not required on galvanized steel, aluminum or other nonferrous materials for items that do not require touch-up painting or are not specified to be painted.

- D. In addition to the painting indicated in the above Paint Application Table, paint all aluminum surfaces that will be in contact with concrete or dissimilar metals using two coats of the prime coat specified for Exterior Metal. Coordinate painting with the fabrication of components and with the work of other trades so as to ensure the full and correct application of paint materials.
- E. In addition to the painting indicated in the above Paint Application Table, apply touch-up paint to finish defects and field cuts, welds, and penetrations of galvanized metal. Prepare and pretreat surfaces in accordance with Schedule M7 above and finish paint according to the appropriate paint schedule.
- F. Prime and finish painting, regardless of the location in which the work is performed, shall conform to all requirements of this Section. Coordinate painting with the fabrication of components and with the work of other trades so as to ensure the full and correct application of paint materials.

1.2 DEFINITIONS

- A. For the purposes of this Section, the following definitions apply: "Exposed to View" means all surfaces in the final work that could be seen from any vantage point from any height. "Paint" means all pretreatment, prime, intermediate and final coatings specified herein including clear, translucent and opaque materials.

1.3 QUALITY ASSURANCE

- A. Applicator's Quality Assurance: Submit list of a minimum of 3 completed projects of similar size and complexity to this Work completed within the last 5 years. Projects shall demonstrate experience working on comparable structures. Include for each project:
 - 1. Project name and location.
 - 2. Name of project Owner, include a contact name and phone number.
 - 3. Name of General Contractor if different than Contractor holding this contract.
 - 4. Name of Engineer, include a contact name and phone number.
 - 5. Name of coating manufacturer.
 - 6. Approximate area of coatings applied.
 - 7. Date of completion.
- B. Use only qualified journeyman painters for the mixing and application of paint on exposed surfaces. In the acceptance or rejection of installed painting, no allowance will be made for lack of skill on the part of painters.
- C. Apply paints following the recommendations in the "Applications Manual for Paint and Protective Coatings" published by McGraw-Hill.

1.4 FIELD QUALITY CONTROL

- A. Inspector's Services: The Contractor shall hire Dixon Engineering or Nelson Tank (third party satisfactory to the Owner), at no additional expense to the Owner, to perform field inspections of items 1-4 below and prepare the field inspection reports described in item 5 below:
1. Verify coatings and other materials are as specified.
 2. Verify surface preparation and applications are as specified.
 3. Visually inspect all welds prior to coating.
 4. Verify DFT of each coat and total DFT of each coating systems are as specified using wet film and dry film gauges.
 5. Coating Defects: Check coatings for film characteristics or defects that would adversely affect performance or appearance of coating systems.
 6. Report:
 - a. Submit written reports describing inspections made and actions taken to correct nonconforming work.
 - b. Report nonconforming work not corrected.
 - c. Submit copies of report to Owner and Contractor.

1.5 SUBMITTALS

- A. Provide submittals in accordance with Division 1 of the Specifications. Prior to ordering and delivering paint materials to the project site, submit the following:
1. Manufacturer literature demonstrating compliance with these Specifications and indicating paint formulation, rate of coverage, recommended uses and recommended application method.
 2. Color chips for the full range of colors available in each product.
- B. The paint products indicated in these Specifications establish the required standard of paint quality. Requests for substitution will not be considered.

1.6 PRODUCT HANDLING

- A. Deliver all paint materials to the job site in their original unopened containers with all labels intact and legible at time of use. Store only the approved materials at the job site. Store them in a suitable and designated area restricted to the storage of paint materials and related equipment. Use all means necessary to ensure the safe storage and use of paint materials and the prompt and safe disposal of waste. Store volatile solvents, rags and cleaning materials in a well ventilated area.
- B. Use all means necessary to protect paint materials before, during, and after application and to protect the installed work and materials of all other trades. In the event of damage, immediately make all repairs and replacements necessary at no additional cost to the Owner.

1.7 EXTRA STOCK

- A. Upon completion of the work of this Section, deliver to the Owner an extra stock of paint equaling approximately 2% of each color and gloss used in each coating material with all such extra stock tightly sealed in clearly labeled containers that have not been previously opened.

1.8 GUARANTEE

- A. Furnish a 1-year warranty from the date of substantial completion on workmanship. Manufacturer to provide an unlimited warranty on the materials.

2.0 PRODUCTS

2.1 PAINT MATERIALS

- A. Provide paint materials in accordance with the paint schedules that follow the text of this Section.
- B. All paint materials for each paint system shall be the products of a single manufacturer. All paint materials and equipment shall be compatible in use: finish coats shall be compatible with prime coats, prime coats shall be compatible with the surface to be coated, and all tools and equipment shall be compatible with the coating to be applied. Thinners, when used, shall be only those thinners specifically recommended for that purpose by the manufacturer of the material to be thinned.

3.0 EXECUTION

3.1 SURFACE CONDITIONS

- A. Prior to beginning the work of this Section, carefully inspect the installed work of all other trades and verify that all such work is complete to the point where this application may properly commence. Verify that paint finishes may be applied in strict accordance with all pertinent codes and regulations and the requirements of these Specifications. In the event of discrepancy, immediately notify the Engineer. Do not proceed with application in areas of discrepancy until all such discrepancies have been fully resolved. Application of paint materials shall be deemed to indicate acceptability of the existing surface conditions.

3.2 SURFACE PREPARATION

- A. General
 - 1. Prior to beginning surface preparation and painting operations, completely mask, remove, or otherwise adequately protect all hardware, accessories, machined surfaces, plates, equipment identification tags/nameplates, lighting fixtures, and all work of other trades that are not to receive the paint coating. Before applying paint, thoroughly clean and prepare all surfaces according to the specified surface preparation method. Schedule all cleaning and painting so that dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
 - 2. Spot prime all necessary areas prior to beginning field painting.

B. Preparation of Concrete and Masonry Surfaces

1. The surface finishing of concrete is specified in Division 3.00 of these Specifications. Do not begin paint application until these requirements have been met and concrete has cured for at least 28 days.
2. Prior to painting, grind or scrape off all surface defects such as fins, protrusions, bulges, and mortar spatter. On concrete surfaces, remove non-degraded release agents, oil, wax and grease by scraping off heavy deposits and washing with hot trisodium phosphate solution (2 lbs trisodium phosphate per gallon 160°F water). After cleaning flush with warm water to remove residual cleaning solution.
3. Where the paint schedule calls for brush-off blast cleaning, dry sandblast concrete using silica sand passing a 16 mesh screen. Sandblast until the surface has been lightly abraded without entirely removing the surface or exposing underlying aggregate. After sandblasting, remove dust, sand and loose particles by vacuuming or blowing off with high pressure air.

C. Preparation of Metal Surfaces

1. Prepare metal surfaces for painting by following the method indicated on the appropriate paint schedule. Preparation methods are referenced to the Steel Structures Painting Council (SSPC) Specifications. Do not prepare metal for painting when the relative humidity is higher than 85% or the metal is less than 5°F above the dew point. After surface preparation, thoroughly clean all surfaces of any remaining dirt, oil and grease and leave it ready to receive prime paint.

3.3 PAINT APPLICATION

- A. Apply paint in accordance with paint schedule requirements, the cited reference, all codes and regulations, and the recommendations of the paint manufacturer. Apply prime paint to metal surfaces within 24 hrs after surface preparation. Do not apply paint in areas where dust is being generated.
- B. Do not apply paint when the surrounding air temperature as measured in the shade is below 40°F or when the temperature of the surface to be painted is below 35°F. Do not apply paint when it is expected that the relative humidity will exceed 85% or that the air temperature will drop below 40°F within 18 hrs after the application of paint. Dew or moisture condensation should be anticipated and if such conditions are prevalent, delay painting until certain that the surfaces can be kept above the dew point. Follow all additional environmental limitation requirements of the paint manufacturer.
- C. Paint material mil thicknesses and numbers of coats that are indicated in the paint schedules are based on brush or roller application. Spray application of paint materials will be allowed in the field only for areas or surfaces that are very difficult to paint with brush or roller. Field spray application must be approved by the Engineer before its initiation. For areas that are spray painted, apply as many coats as necessary to achieve specified mil thicknesses.
- D. Allow sufficient drying time between coats of paint. During adverse weather, extend length of drying time as recommended by the paint manufacturer.

- E. Prior to applying each paint coating after the first, check mil thickness of previously applied coating(s). Correct for insufficient paint thickness by increasing the mil thickness of subsequent applications, if allowed by the paint manufacturer or by applying additional coatings to provide the specified paint thickness.
- F. Spot sand between coatings to remove paint defects visible to the unaided eye from a distance of five feet.
- G. Ventilation: Provide ventilation during coating evaporation stage in confined or enclosed areas in accordance with AWWAD 102.
- H. Paint system for the concrete floors shall not be applied until all other work by other trades is complete.

3.4 CLEAN UP

- A. During the progress of the work, do not allow the accumulation of empty containers or other excess items except in areas specifically set aside for that purpose. Following completion of painting in each area, promptly remove all masking and temporary protection. After paint has dried, reinstall all items removed for painting. Upon completion of this portion of the work, visually inspect all surfaces and remove paint and traces of paint from surfaces not scheduled to be painted.

SCHEDULES FOLLOW

PAINT SCHEDULE M1
SERVICE: EXTERIOR METAL

09900-7

Surface Preparation: **Roof Deck Under Insulation: SSPC-SP1 Solvent Clean**
Galvanized Metal: SSPC-SP7 Brush-off Blast
Lintels: SSPC-SP6 Commercial Blast

Paint Manufacturer	Application	Product Name	Generic Type	No. of Coats	Dry Mils/ Coat	Sq Ft Covered/ Gallon	Comments
Tnemec	Primer	Omnithane Series 530	Moisture Cured Aromatic Urethane	one	2-3		Not required for galvanized
Tnemec	Field Primer	F.C. Typoxy Series 27	Polyamide Epoxy	one	3-5		Not required for roof deck
Tnemec	Finish	Endura-shield Series 1074	Aliphatic Acrylic Polyurethane	two	2-3		Not required for roof deck

PAINT SCHEDULE M2
SERVICE: INTERIOR METAL

09900-8

Surface Preparation: SSPC-SP6 Commercial Blast

Paint Manufacturer	Application	Product Name	Generic Type	No. of Coats	Dry Mils/ Coat	Sq Ft Covered/ Gallon	Comments
Tnemec	Primer	Omnithane Series 530	Moisture Cured Aromatic Urethane	one	2-3		
Tnemec	Intermediate	F.C. Typoxy Series 27	Polyamide Epoxy	one	3-5		
Tnemec	Finish	Endura- Shield II Series 1074	Aliphatic Acrylic Polyurethane	two	2-3		Gloss

PAINT SCHEDULE M7

09900-9

SERVICE: PRETREATMENT OF GALVANIZED AND NONFERROUS METALS

Surface Preparation: Prepare surfaces by sanding, abrading or using Clean N Etch as manufactured by Great Lake Laboratories or owner approved equal. SSPC-SP1 Solvent Cleaning

For all galvanized items that require touch-up painting, pretreat items as indicated in the surface preparation, then apply a zinc-rich primer to all areas requiring touch up.

For galvanized and non-ferrous metal items to be painted following pretreatment and touch-up, refer to Schedule M1 for Exterior Metal items and Schedule M2 for Interior Metal Items.

APPENDIX A

LEAD PAINT TEST RESULTS

CORROSION CONTROL CONSULTANTS & LABS, INC. a GPI company

ANALYTICAL LABORATORY REPORT

Wednesday, March 13, 2013

Page 1 of 2

CUSTOMER: Stantec
3754 Ranchero Drive
Ann Arbor, MI 48108

DATE RECEIVED: Thursday, March 7, 2013
PO/PROJECT #: 2075120204
SUBMITTAL #: 2013-03-07-013

LAB NUMBER: AB47422

Sampled By: Gary J. Sacharski
Job Location: Ann Arbor, MI
Sample Identification: 1 - Mack Pool Interior Door Jambs

Date Sampled: Wednesday, March 6, 2013
Sample Description: Paint Chips

Preparation Method: EPA 3050B-P-M (Acid Digestion for Paints)
Analysis Method: EPA 6010C (ICP-AES Method for Determination of Metals)
Date Analyzed: Tuesday, March 12, 2013

<u>ELEMENT</u>	<u>RESULT (by weight)</u>	<u>REPORTING LIMIT (RL)</u>
Lead	< RL	0.0025 %

CCC&L has obtained accreditation under the programs detailed on the final page of the laboratory report. The accreditations pertain only to the testing performed for the elements, and in accordance with the test methods, listed in the scope of accreditation table. Testing which is performed by CCC&L according to other test methods, or for elements which are not included in the table fall outside of the current scope of laboratory accreditation.

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ANALYTICAL LABORATORY REPORT

Wednesday, March 13, 2013

Page 2 of 2

CUSTOMER: Stantec
3754 Ranchero Drive
Ann Arbor, MI 48108

DATE RECEIVED: Thursday, March 7, 2013
PO/PROJECT #: 2075120204
SUBMITTAL #: 2013-03-07-013

Unless otherwise noted, the condition of each sample was acceptable upon receipt, all laboratory quality control requirements were met, and sample results have not been adjusted based on field blank or other analytical blank results. Individual sample results relate only to the sample as received by the laboratory.

Tests Reviewed By: Jason Kraai, Senior Analyst *Jason Kraai* 2013.03.13 13:35:00
- Jason Kraai
-04'00'

CCC&L has obtained accreditation under the following programs:

- National Lead Laboratory Accreditation Program (NLLAP)**
ELLAP: AIHA Laboratory ELLAP Accreditation Program Laboratory, ID#101030 (www.aiha.org)
OH: Ohio Department of Health Lead Poisoning Prevention Program, Approval #E10013 (www.odh.ohio.gov)
- AIHA Laboratory IHLAP Accreditation Program** (www.aiha.org)
IHLAP: Laboratory ID#101030
- National Environmental Laboratory Accreditation Program (NELAP)**
NY: State of New York Department of Health, Laboratory ID#11609 (Serial # 46417 through 46421) (518-485-5570)
LA: State of Louisiana Department of Environmental Quality, Laboratory ID#180321 (Certificate 05036) (www.deq.louisiana.gov)
OK: Oklahoma Department of Environmental Quality, Laboratory ID#9993 (Certificate 2012-034) (www.deq.state.ok.us)

The accreditations pertain only to the testing performed for the elements, and in accordance with the test methods, listed in the table below. Testing which is performed by CCC&L according to other test methods, or for elements which are not included in the table below fall outside of the current scope of laboratory accreditation. Customers are encouraged to verify the current accreditation status with the individual accreditation programs by calling or visiting the appropriate website for the applicable program.

SCOPE OF ACCREDITATION**Air and Emissions**

<u>Element/Test</u>	<u>Method</u>	<u>Accreditation(s)</u>
Particulates (PM10)	40 CFR 50 Appendix J	NY, LA
Total Suspended Particulates (TSP)	40 CFR 50 Appendix B	NY, LA
Lead in Airborne Dust	NIOSH 7300	ELLAP, OH, NY, LA
Lead in Airborne Dust	EPA600/R-93/200	ELLAP, OH
Metals in Airborne Dust	NIOSH 7300/ EPA 6010B or EPA 6010C	IHLAP
Metals in Airborne Dust	EPA600/R-93/200/ EPA 6010B or EPA 6010C	IHLAP

Solid Chemical Materials

<u>Element/Test</u>	<u>Method</u>	<u>Accreditation(s)</u>
TCLP	EPA 1311(Sample Preparation Method)	NY, LA, OK
Acid Digestion	EPA 3050B	NY, LA
Lead in Soil	EPA 3050B/EPA 6010C	NY, LA, OK
Lead in Soil	EPA 3050B/EPA 6010B or EPA 6010C	ELLAP, OH, NY, LA
Lead in Paint	EPA 3050B/EPA 6010B or EPA 6010C	ELLAP, OH, NY, LA
Lead in Dust Wipes	EPA 6010B or EPA 6010C	NY, LA
Lead in Dust Wipes	EPA600/R-93/200/EPA 6010B or 6010C	ELLAP, OH

Non-Potable Water / Analysis by ICP

<u>Element/Test</u>	<u>Method</u>	<u>Accreditation(s)</u>	<u>Method</u>	<u>Accreditation(s)</u>
Arsenic	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Barium	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Cadmium	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Chromium	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Copper	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Lead	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Mercury	EPA 245.1 Rev.3	NY, LA, OK		
Mercury	EPA 7470A	NY, LA, OK		
Nickel	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Selenium	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Silver	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Zinc	EPA 6010B	NY	EPA 6010C/ EPA 200.7 Rev 4.4	NY, LA, OK
Acid Digestion	EPA 3010A	NY, LA		

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