

INVITATION TO BID

ITB # 4335

RESTROOM RENOVATIONS PROJECT FIRE STATIONS 3 AND 4



Due Date: Monday, May 19, 2014 by 11:00 AM

Issued By:

City of Ann Arbor
Procurement Unit
301 E. Huron Street
Ann Arbor, MI 48107

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ADVERTISEMENT TO BID
CITY OF ANN ARBOR

ITB #4335

Sealed Bids will be received by the City of Ann Arbor Procurement Unit, First (1st) Floor, Guy Larcom City Hall, on or before Monday, May 19, 2014 at 11:00 AM for Fire Station Restroom Renovations. Bids will be publicly opened and read aloud at this time.

Work includes the provision of all necessary drawings, engineering, permitting, construction, labor and materials to renovate restroom and related facilities in Fire Station #3 and Fire Station #4.

A mandatory pre-bid conference will be held Wednesday, May 7, 2014 at 9:00 a.m. at Fire Station #3 located at 2130 Jackson Avenue, Ann Arbor, Michigan 48103. Please park in the Vet's Park parking lot adjacent to the fire station.

Bid documents, specifications, and addendum shall be downloaded by bidders at either of the following web sites, Michigan Inter-governmental Trade Network (MITN) www.mitn.info or City of Ann Arbor web site www.a2gov.org.

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: (i) compliance with Chapter 112 of Title IX of the Code of the City of Ann Arbor. (ii) compliance with applicable prevailing wage and living wage requirements of Chapter 23 of Title I of the Code of the City of Ann Arbor. All bidders are required to complete and submit the City of Ann Arbor Conflict of Interest Disclosure Form with the bid. Further information is outlined in the contract documents.

After the time of opening, no Bid may be withdrawn for a period of sixty (60) days.

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

Any further information may be obtained from the Ann Arbor Procurement Office,
(734) 794-6500

CITY OF ANN ARBOR PROCUREMENT UNIT

Version 01/2010

AD-1

NOTICE OF MANDATORY PRE-BID CONFERENCE

A **mandatory** pre-bid conference for this project will be held on Wednesday, May 7, 2014 at 9:00 AM at Fire Station #3 located at 2130 Jackson Avenue, Ann Arbor, Michigan 48103. Please park in the Vet's Park parking lot adjacent to the fire station.

Attendance at this conference is required. A tour of fire stations #3 and #4 will be held at the conclusion of the pre-bid conference. Administrative and technical questions regarding this project will be answered at this time. The pre-bid meeting 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.

Failure to attend the meeting and sign the ITB #4335 sign-in sheet at the pre-bid meeting will automatically disqualify a bidder from submitting a valid bid. Any bid submitted by a party not attending and signing the roster at the pre-bid meeting will not be opened or considered.

INSTRUCTIONS TO BIDDERS

General

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

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

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 Number BF-1 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 Monday, May 12, 2014 at 4:00 PM and should be addressed as follows:

Specification/Scope of Work questions emailed to mjkulhanek@a2gov.org

Bid Process and HR Compliance questions emailed to mberryman@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 Monday, **May 19, 2014 by 11:00 AM**. 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 4335 – Fire Station Restroom Renovations**

Bids must be addressed and delivered to:

City of Ann Arbor
Procurement Unit,
c/o Customer Service, 1st 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 at the address above in order to be considered. Normal business hours are 8:00 a.m. to 4:00 p.m. Monday through Friday, excepting Holidays. 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 will not be granted to a single Bidder; however, additional time may be granted to all Bidders when the City determines 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.

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 60 days specified in the Advertisement.

Contract Time

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

Liquidated Damages

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

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

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

Human Rights Information

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

Wage Requirements

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

Conflict Of Interest Disclosure

The City of Ann Arbor Purchasing Policy requires that prospective Vendors complete a Conflict of Interest Disclosure form. A contract may not be awarded to the selected Vendor unless and until the Procurement Unit and the City Administrator have reviewed the Disclosure form and determined that no conflict exists under applicable federal, state, or local law or administrative regulation. Not every relationship or situation disclosed on the Disclosure Form may be a disqualifying conflict. Depending on applicable law and regulations, some contracts may awarded on the recommendation of the City Administrator after full disclosure, where such action is allowed by law, if demonstrated competitive pricing exists and/or it is determined the award is in the best interest of the City. A copy of the Vendor Conflict of Interest Disclosure Form is found in Attachment C.

Major Subcontractors

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

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 bidder’s bid is subjected to disclosure under the provisions of Michigan Public Act No. 442 of 1976, as amended (MCL 15.231 et seq.) know 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.

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, Vendor Conflict of Interest Disclosure Form, 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 _____, 2014.

Bidder's Name

Official Address

Telephone Number

Authorized Signature of Bidder

(Print Name of Signer Above)

LEGAL STATUS OF BIDDER

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

Bidder declares that it is:

* A corporation organized and doing business under the laws of the state of _____, for whom _____, bearing the office title of _____, whose signature is affixed to this 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

Company: _____

Project: **Fire Station Restroom Renovations Project ITB - 4335**

Base Bid – Fire Station #3

For the entire work outlined in these documents for Fire Station #3, complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

(\$ _____)

Base Bid – Fire Station #4

For the entire work outlined in these documents for Fire Station #4, complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

(\$ _____)

Total Bid (add base bids above) – Bid bond should be based on this amount

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

_____ Dollars (\$ _____)

Alternate Bid – Fire Station #3

For the entire work outlined in these documents under Alternate work for the locker room facilities (Fire Station #3 only), complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

(\$ _____)

Alternate Bid – Fire Station #4

For the entire work outlined in these documents under Alternate work for the locker room facilities (Fire Station #4 only), complete as specified, using equipment and materials only of the type and manufacturers where specifically named.

(\$ _____)

BID FORM

Section 2 - Material and Equipment Alternates

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

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

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

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

Signature of Authorized Representative of Bidder: _____

BID FORM

Section 3 - Time Alternate

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

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

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

Signature of Authorized Representative of Bidder

BF-3

BID FORM

Section 4 - 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.

Subcontractor (Name and Address)

Work

Amount

If the Bidder does not expect to engage any major subcontractor, the Bidder **MUST** complete the following statement:

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

Signature of Authorized Representative of Bidder

CONTRACT

THIS AGREEMENT is made on the _____ day of _____, 2014, between the CITY OF ANN ARBOR, a Michigan Municipal Corporation, 301 E. 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 “Fire Station Restroom Renovations” 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	Contract and Exhibits
Compliance Forms	Bonds
Living Wage Declaration of	General Conditions
Compliance Forms	Standard Specifications
(if applicable)	Detailed Specifications
Vendor Conflict of Interest Disclosure	Plans
Form	Addenda
Bid Forms	

ARTICLE II - Definitions

Administering Service Area/Unit means Fleet & Facilities Unit

Supervising Professional means Fleet & Facilities Unit Manager or other persons acting under the authorization of the Administrator/Manager of the Administering Service Area/Unit.

Project means Fire Station Restroom Renovations Bid No. ITB-4335

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

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

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

ARTICLE IV - The Contract Sum

Unit Price Contracts

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

_____ 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.

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 Service 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 _____, 2014, 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 _____, 2014.

(Name of Surety Company)

(Name of Principal)

By

(Signature)

By

(Signature)

Its

(Title of Office)

Its

(Title of Office)

Name and address of agent:

Approved as to form:

Stephen K. Postema, City Attorney

LABOR AND MATERIAL BOND

(1) _____ of _____, (referred to as "Principal"), and _____, a corporation duly authorized to do business in the State of Michigan, (referred to as "Surety"), are bound to the City of Ann Arbor, Michigan (referred to as "City"), for the use and benefit of claimants as defined in Act 213 of Michigan Public Acts of 1963, as amended, being MCL 129.201 et seq., in the amount of \$ _____, for the payment of which Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, by this bond.

(2) The Principal has entered a written contract with the City, dated _____, 2014, 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 _____, 2014.

(Name of Surety Company)
By
(Signature)

Its
(Title of Office)

Approved as to form:

Stephen K. Postema, City Attorney

(Name of Principal)

By
(Signature)

Its
(Title of Office)

Name and address of agent:

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

1:815. Living Wages Required.

- (1) Every contractor/vendor or grantee, as defined in Section 1:813, shall pay its covered employees a living wage as established in this Section.
 - (a) For a covered employer that provides employee health care to its employees, the living wage shall be \$9.42 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 \$10.91 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 agrees to comply with the provisions of Section 9:161 of Chapter 112 of the Ann Arbor City Code and in particular the following excerpts:

9:161 NONDISCRIMINATION BY CITY CONTRACTORS

- (1) All contractors proposing to do business with the City of Ann Arbor shall satisfy the nondiscrimination administrative policy adopted by the City Administrator in accordance with the guidelines of this section. All contractors shall receive approval from the Director prior to entering into a contract with the City, unless specifically exempted by administrative policy. All City contractors shall take affirmative action to insure that applicants are employed and that employees are treated during employment in a manner which provides equal employment opportunity and tends to eliminate inequality based upon race, national origin or sex.
- (2) Each prospective contractor shall submit to the City data showing current total employment by occupational category, sex and minority group. If, after verifying this data, the Director concludes that it indicates total minority and female employment commensurate with their availability within the contractor's labor recruitment area, i.e., the area from which the contractor can reasonably be expected to recruit, said contractor shall be accepted by the Director as having fulfilled affirmative action requirements for a period of one year at which time the Director shall conduct another review. Other contractors shall develop an affirmative action program in conjunction with the Director. Said program shall include specific goals and timetables for the hiring and promotion of minorities and females. Said goals shall reflect the availability of minorities and females within the contractor's labor recruitment area. In the case of construction contractors, the Director shall use for

employment verification the labor recruitment area of the Ann Arbor-Ypsilanti standard metropolitan statistical area. Construction contractors determined to be in compliance shall be accepted by the Director as having fulfilled affirmative action requirements for a period of six (6) months at which time the Director shall conduct another review.

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

- (d) Impose for each day of non-compliance, liquidated damages of a specified sum, based upon the following schedule:

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

- (e) In addition the contractor shall be liable for any costs or expenses incurred by the City of Ann Arbor in obtaining from other sources the work and services to be rendered or performed or the goods or properties to be furnished or delivered to the City under this contract.

Section 6 - Materials, Appliances, Employees

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

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

Adequate sanitary facilities shall be provided by the Contractor.

Section 7 - Qualifications for Employment

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

Section 8 - Royalties and Patents

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

Section 9 - Permits and Regulations

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

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

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

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

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

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

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

Section 11 - Inspection of Work

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

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

If the specifications, the Supervising Professional's instructions, laws, ordinances, or any public authority require any work to be specially tested or approved, the Contractor shall give the Supervising Professional timely notice of its readiness for inspection, and if the inspection is by an authority other than the Supervising Professional, of the date fixed for the inspection. Inspections by

the Supervising Professional shall be made promptly, and where practicable at the source of supply. If any work should be covered up without approval or consent of the Supervising Professional, it must, if required by the Supervising Professional, be uncovered for examination and properly restored at the Contractor's expense.

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

Section 12 - Superintendence

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

Section 13 - Changes in the Work

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

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

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

Section 14 - Extension of Time

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

- (1) When work under an extra work order is added to the work under this Contract;
- (2) When the work is suspended as provided in Section 20;
- (3) When the work of the Contractor is delayed on account of conditions which could not have been foreseen, or which were beyond the control of the Contractor, and which were not the result of its fault or negligence;

- (4) Delays in the progress of the work caused by any act or neglect of the City or of its employees or by other Contractors employed by the City;
- (5) Delay due to an act of Government;
- (6) Delay by the Supervising Professional in the furnishing of plans and necessary information;
- (7) Other cause which in the opinion of the Supervising Professional entitles the Contractor to an extension of time.

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

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

Section 15 - Claims for Extra Cost

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

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

- (1) The Contractor shall be reimbursed for all reasonable costs incurred in doing the work, and shall receive an additional payment of 15% of all the reasonable costs to cover both its indirect overhead costs and profit;
- (2) The term "Cost" shall cover all payroll charges for employees and supervision required under the specific order, together with all worker's compensation, Social Security, pension and retirement allowances and social insurance, or other regular payroll charges on same; the cost of all material and supplies required of either temporary or permanent character; rental of all power-driven equipment at agreed upon rates, together with cost of fuel and supply charges for the equipment; and any costs incurred by the Contractor as a direct result of executing the order, if approved by the Supervising Professional;
- (3) If the extra is performed under subcontract, the subcontractor shall be allowed to compute its charges as described above. The Contractor shall be permitted to add an additional charge of

5% percent to that of the subcontractor for the Contractor's supervision and contractual responsibility;

- (4) The quantities and items of work done each day shall be submitted to the Supervising Professional in a satisfactory form on the succeeding day, and shall be approved by the Supervising Professional and the Contractor or adjusted at once;
- (5) Payments of all charges for work under this Section in any one month shall be made along with normal progress payments. Retainage shall be in accordance with Progress Payments-Section 16.

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

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

Section 16 - Progress Payments

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

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

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

the date of delivery of all of the equipment to be furnished, unless testing has been completed and shows the equipment to be unacceptable.

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

Section 17 - Deductions for Uncorrected Work

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

Section 18 - Correction of Work Before Final Payment

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

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

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

Section 19 - Acceptance and Final Payment

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

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

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

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

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

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

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

Section 20 - Suspension of Work

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

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

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

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

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

Section 22 - Contractor's Right to Terminate Contract

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

Section 23 - City's Right To Do Work

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

Section 24 - Removal of Equipment and Supplies

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

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

Section 25 - Responsibility for Work and Warranties

The Contractor assumes full responsibility for any and all materials and equipment used in the construction of the work and may not make claims against the City for damages to materials and equipment from any cause except negligence or willful act of the City. Until its final acceptance, the

Contractor shall be responsible for damage to or destruction of the project (except for any part covered by Partial Completion and Acceptance - Section 26). The Contractor shall make good all work damaged or destroyed before acceptance. All risk of loss remains with the Contractor until final acceptance of the work (Section 19) or partial acceptance (Section 26). The Contractor is advised to investigate obtaining its own builders risk insurance.

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

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

Section 26 - Partial Completion and Acceptance

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

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

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

Section 27 - Payments Withheld Prior to Final Acceptance of Work

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

- (1) Defective work not remedied;
- (2) Claims filed or reasonable evidence indicating probable filing of claims by other parties against the Contractor;

- (3) Failure of the Contractor to make payments properly to subcontractors or for material or labor;
- (4) Damage to another Contractor.

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

Section 28 - Contractor's Insurance

- A. The Contractor shall procure and maintain during the life of this Contract, including the guarantee period and during any warranty work, such insurance policies, including those set forth below, as will protect itself from all claims for bodily injuries, death or property damage which may arise under this Contract; whether the acts were made by the Contractor or by any subcontractor or anyone employed by them directly or indirectly. The following insurance policies are required:
 1. Worker's Compensation Insurance in accordance with all applicable state and federal statutes. Further, Employers Liability Coverage shall be obtained in the following minimum amounts:

Bodily Injury by Accident - \$500,000 each accident
Bodily Injury by Disease - \$500,000 each employee
Bodily Injury by Disease - \$500,000 each policy limit
 2. Commercial General Liability Insurance equivalent to, as a minimum, Insurance Services Office form CG 00 01 07 98. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements including, but not limited to: Products and Completed Operations, Explosion, Collapse and Underground coverage or Pollution. Further, the following minimum limits of liability are required:

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

\$2,000,000 Per Job General Aggregate

\$1,000,000 Personal and Advertising Injury

\$2,000,000 Products and Completed Operations Aggregate
 3. Motor Vehicle Liability Insurance, including Michigan No-Fault Coverages, equivalent to, as a minimum, Insurance Services Office form CA 00 01 07 97. The City of Ann Arbor shall be named as an additional insured. There shall be no added exclusions or limiting endorsements. Coverage shall include all owned vehicles, all non-owned vehicles and all hired vehicles. Further, the limits of liability shall be \$1,000,000 for each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.
 4. Umbrella/Excess Liability Insurance shall be provided to apply excess of the Commercial General Liability, Employers Liability and the Motor Vehicle coverage enumerated above, for each occurrence and for aggregate in the amount of \$1,000,000.

- B. Insurance required under Section A.2 and A.3 of this Contract shall be considered primary as respects any other valid or collectible insurance that the City may possess, including any self-insured retentions the City may have; and any other insurance the City does possess shall be considered excess insurance only and shall not be required to contribute with this insurance. Further, the Contractor agrees to waive any right of recovery by its insurer against the City.
- C. In the case of all Contracts involving on-site work, the Contractor shall provide to the City before the commencement of any work under this Contract documentation demonstrating it has obtained the above mentioned policies. Documentation must provide and demonstrate an unconditional 30 day written notice of cancellation in favor of the City of Ann Arbor. Further, the documentation must explicitly state the following: (a) the policy number; name of insurance company; name and address of the agent or authorized representative; name and address of insured; project name; policy expiration date; and specific coverage amounts; (b) any deductibles or self-insured retentions which shall be approved by the City, in its sole discretion; (c) that the policy conforms to the requirements specified. An original certificate of insurance may be provided as an initial indication of the required insurance, provided that no later than 21 calendar days after commencement of any work the Contractor supplies a copy of the endorsements required on the policies. Upon request, the Contractor shall provide within 30 days a copy of the policy(ies) to the City. If any of the above coverages expire by their terms during the term of this Contract, the Contractor shall deliver proof of renewal and/or new policies to the Administering 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.

Section 43

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

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

Contractor

Date

By _____
(Signature)

Its _____
(Title of Office)

Past due invoices, if any, are listed below.

Section 44

CONTRACTOR'S AFFIDAVIT

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

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

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

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

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

Contractor

By _____
(Signature)

Its _____
(Title of Office)

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

Notary Public

_____ County, MI

My commission expires on: _____

APPENDIX A - 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/vendors/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/vendors/grantees include a similar provision in all subcontracts that they execute for City work or programs.

This Ordinance further requires that each prospective contractor/vendor 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/vendor 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													

**APPENDIX B – LIVING WAGE FORMS
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 \$12.78/hour when health care is provided, or no less than \$14.25/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 2014.
- 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, 2014 - ENDING APRIL 29, 2015

\$12.78 per hour

If the employer provides health care benefits*

\$14.25 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
Mark Berryman at 734/794-6500 or mberryman@a2gov.org**

ATTACHMENT C – VENDOR CONFLICT OF INTEREST DISCLOSURE FORM



Vendor Conflict of Interest Disclosure Form

All vendors interested in conducting business with the City of Ann Arbor must complete and return the Vendor Conflict of Interest Disclosure Form in order to be eligible to be awarded a contract. Please note that all vendors are subject to comply with the City of Ann Arbor’s conflict interest policies as stated within the certification section below.

If a vendor has a relationship with a City of Ann Arbor official or employee, an immediate family member of a City of Ann Arbor official or employee, the vendor shall disclose the information required below.

Certification: I hereby certify that to my knowledge, there is no conflict of interest involving the vendor named below:

1. No City official or employee or City employee’s immediate family member has an ownership interest in vendor’s company or is deriving personal financial gain from this contract.
2. No retired or separated City official or employee who has been retired or separated from the City for less than one (1) year has an ownership interest in vendor’s Company.
3. No City employee is contemporaneously employed or prospectively to be employed with the vendor.
4. Vendor hereby declares it has not and will not provide gifts or hospitality of any dollar value or any other gratuities to any City employee or elected official to obtain or maintain a contract.
5. Please note any exceptions below:

Vendor Name	Vendor Phone Number
Conflict of Interest Disclosure *	
Name of City of Ann Arbor employees, elected officials, or immediate family members with whom there maybe a potential conflict of interest.	() Relationship to employee _____ () Interest in vendor’s company _____ () Other _____

*Disclosing a potential conflict of interest does not disqualify vendors. In the event vendors do not disclose potential conflicts of interest and they are detected by the City, vendor will be exempt from doing business with the City.

I certify that the information provided is true and correct by my signature below:

Signature of Vendor Authorized Representative Date Printed Name of Vendor Authorized Representative

PROCUREMENT USE ONLY

- Yes, named employee was involved in Bid / Proposal process.
- No, named employee was not involved in procurement process or decision.

DETAILED SPECIFICATIONS

DESCRIPTION OF WORK

1.1 Summary

The project consists of renovations and general improvements to restroom and locker room facilities in Fire Stations 3 & 4. The primary restroom work for each station will be listed under the base bid and the locker room work in each station will be bid as alternate work.

1.2 Sequence of Work

The work product will be sequenced with Phase I (Fire Station #3) and Phase II (Fire Station #4) work. Phase II work will not begin until Phase I work is completed and those facilities are fully functional and available for use per the Owner's opinion.

1.3 Drawings

There are no engineered drawings as part of the specifications. Any required engineering drawings will be the responsibility of the successful bidder.

1.4 Products

This Description of Work provides specific details, including model numbers, of many products to be used in the Project. These specific products, where listed, must be bid as specified. If a product or model number is no longer available, the Owner will select the appropriate replacement. This is necessary as the City is standardizing many products to reduce inventories and repair costs for City facilities. If the product is listed as basis of design, then equivalent products, with the approval of the Owner, are acceptable.

1.5 Fire Station #3 Restroom Work (Base Bid)

- A. This work consists of the demolition of an existing restroom facility and its conversion into two unisex restrooms (base bid).
- B. Floors
 - 1. Hallway – Remove the existing floor covering. The floor should be prepped and new resilient rubber flooring (Nora, Noraplan Environcare art. #2463) installed per manufacturer's recommendation. Owner to select from full range of manufacturer's colors.
 - 2. Restroom –
 - a. The concrete floor should be saw cut and removed to full depth. Existing plumbing, both supply and waste, and hot water heat supply and return are in/under the concrete floor

- in unknown locations and must be shut off prior to floor removal.
 - b. After the new plumbing work is completed, the concrete floor should be reinstalled at a minimum 4" depth, reinforced and doweled (18" O.C.) on all four sides. The floor should be sloped to the new floor drains.
 - c. Ceramic tile flooring (CT-2, Daltile Veranda Solids) to be installed per the manufacturer's recommendation.
 - 3. Marble thresholds must be used where indicated on the Flooring and Wall Covering Plan. The Owner shall select from the manufacturer's range of colors.
- C. Plumbing Fixtures
 - 1. Install new toilets (Kohler Kelston K-3754, white) and toilet seats (Bemis #7650TJ – white).
 - 2. Install new urinals (Zurn Z5798) and urinal flush valves (Zurn ZEG 6003 EV).
 - 3. Install new faucets (Zurn Sierra Z7443XL) and lavatories (Kohler Kelston K-2382 under-mount, white).
 - 4. Install new shower valves (Zurn Temp-Gard Z7100-SS-LH) and shower heads (Zurn Temp-Gard Z7000 HW).
 - 5. Existing plumbing supply and waste piping should be permanently capped or removed if not being re-used.
 - 6. All fixtures should be equipped or supplied with supply shut-off valves so each fixture can be isolated without shutting off the entire restroom.
 - 7. A new waste vent, appropriately sized shall be installed through the roof and the penetration properly sealed.
- D. Ceiling
 - 1. Remove the existing ceiling system.
 - 2. Install 2'x2' linear grid system (Armstrong Suprafine XL) with moisture resistant acoustical tiles (Armstrong #1734) per manufacturer's recommendation where indicated. Ceiling height should be 8'0" AFF.
 - 3. Install 5/8" moisture resistant drywall above the showers. Ceiling height should be 8'0" AFF.
- E. Lighting/Electrical
 - 1. All existing lighting/electrical should be removed and circuits properly terminated if not being re-used.
 - 2. The following light fixture types correspond to the Lighting & Power Plan location drawing:
 - "A" – 2'x2' LED Troffer, 3200 lumen, 4000k CCT (basis of design – Cooper Metalux 2GR-LD1-32-A-UNV)
 - "B" – 6" Recessed LED Can Light, 900 lumen, 4000k CCT (basis of design – Cooper Halo ML56 LED System)
 - "C" – 3' Wall Mounted LED Vanity Light, 2100 lumen, 4000k CCT

(basis of design – Cooper Neo-Ray S23DW-1L40-3-UNV)
“D” – 6” Recessed LED Can Light Wet Location Listing, 900 lumen, 4000kCCT (basis of design – Cooper Halo ML56 LED System)

3. Lights in each restroom should be controlled by ceiling mounted, multi-technology, occupancy sensors with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
4. Lights in hallway should be controlled by ceiling mounted, multi-technology, occupancy sensors with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
5. All existing restroom electrical outlets should be upgraded to GFCI outlets.
6. The exhaust fan should be controlled to run with occupancy in either restroom.
7. Existing fire alarm speaker should be relocated from the north wall to the hallway.
8. All receptacle, switch and electrical box covers should be stainless steel.
9. Install dedicated electrical circuit, if applicable, and appropriate connections for the electric floor heating system.

F. Accessories

1. Install 12” stainless steel wall hung continuous flange urinal screens on both sides of each urinal (basis of design - General Partitions WHF-3).
2. Install new 36” painted metal doors (w/louvers) and frames from the hallway to the restrooms. Owner to select color.
3. Door hardware to include: door bolt with occupancy indicator (Schlage B571-626); commercial grade kick down doorstop; properly sized closing device; stainless steel door pulls (Rockwood No. 110); stainless door push plates (Rockwood No. 70RC)
4. Install new 36” UL listed fire rated door and frame into the north restroom from the apparatus bay hallway to maintain the required 2 hour fire rating of the wall assembly. This is not an emergency egress door.
5. The existing door from the apparatus bay to the sleeping quarters will need to be changed from a left handed door to a right handed door. If the existing door and frame cannot be modified then a new fire rated door and/or frame must be installed.
6. Fire rated door hardware shall be UL listed, commercial grade and include an automatic latching device to engage the latch bolt, properly sized closing device and, in addition, a door bolt with occupancy indicator (restroom door only).
7. Install new 20” x 30” frameless, beveled edge mirrors above each lavatory.
8. Vanity and backsplashes should be wall mounted and constructed of solid surface material (e.g. Corian). The vanity should be 36” w x 24” d with 4” backsplashes on two sides. The face and side trim

of the vanity should also be covered in the same solid surface material. The vanity should be well supported to the wall.

9. Install stainless steel shower curtain rods and vinyl shower curtains.
10. Owner will supply and install paper product dispensers.

G. Walls

1. The following new wall construction types corresponds to the New Wall Construction location drawing:
 - a. Type A – 2 hour UL fire rated wall assembly. All penetrations and joints must be appropriately sealed to maintain the fire rating, full height.
 - b. Type B – plumbing wet wall, shall be sized to handle support brackets for the urinal and related plumbing, metal studs covered by the corresponding wall finish, full height.
 - c. Type C – 3 5/8" metal studs covered by the corresponding wall finish, full height.
2. The following wall finishes correspond to the Flooring and Wall Covering location drawing:
 - a. Type 1 – left blank intentionally.
 - b. Type 2 – 5/8" painted moisture resistant drywall, primer coat and two finish coats.
 - c. Type 3 – cement board and ceramic wall tile (CT-1, Daltile Keystones) to 72" AFF. Painted moisture resistant drywall, primer coat and two finish coats above ceramic wall tile.
 - d. Type 4 – cement board and ceramic wall tile, full height.
 - e. Type 5 – painted concrete block, two finish coats.
3. Install ceramic wall base tile (B-1, Daltile Keystones) around full perimeter of restroom to match wall tile.
4. Install 4" rubber baseboard on all resilient floors. Owner to select from range of manufacturer's colors.

H. Heating

1. Heating to the restrooms shall be provided by an electric floor heating system installed between the concrete floor and the ceramic floor tile.
2. Install 120v electric heating floor mats in all areas, except shower, of each restroom. The mats shall be UL listed, water resistant, no thicker than 1/8", produce at least 41 BTU per sq.ft., have consistent wire spacing of less than 2", be controlled by a programmable thermostat and offer a minimum 25 year warranty (basis of design - NuHeat Electric Floor Heating Systems).
3. The system shall be tested and installed in accordance with manufacturer's recommendations.

I. Mechanical

1. Existing exhaust fan EF-5, and related duct work, should be removed.

2. A new roof mounted exhaust fan should be installed. The new unit should be a UL listed direct drive, 120v, minimum 1000 cfm at 0.25 wc, downblast, spun aluminum centrifugal style fan (basis of design – Greenheck Model G).
3. The new exhaust fan should include the appropriate roof curb, curb seal, gravity damper, birdscreen and controls. Noise and vibration are an issue since the installation is near sleeping quarters and the unit should be specified to minimize both noise and vibration.
4. Appropriately sized rigid insulated duct work shall be installed to provide exhaust ventilation from both restrooms and the hallway. Duct work shall include any necessary dampers to ensure system is balanced. Diffusers shall integrate with the ceiling system.

1.6 Fire Station #4 Restroom Work (Base Bid)

- A. This work consists of the demolition of an existing restroom facility and its conversion into one unisex restroom and storage area (location #1); the conversion of the existing storage area into one unisex restroom (location #2) (base bid).
- B. Floors
 1. Hallway (location #1) - The existing floor should be properly prepared and new resilient rubber flooring (Nora, Noraplan Environcare art. #2463) installed per manufacturer's recommendation. Owner to select from full range of manufacturer's colors.
 2. Restroom (location #1) –
 - a. The concrete floor should be saw cut and removed to full depth. Existing plumbing, both supply and waste, and heat supply are in/under the concrete floor in unknown locations and must be shut off prior to floor removal.
 - b. After the new plumbing work is completed and heat supply reconnected, the concrete floor should be reinstalled at a minimum 4" depth, reinforced and doweled (18" O.C.) on all four sides. The floor should be sloped to the new floor drains.
 - c. Ceramic tile flooring (CT-2, Daltile Veranda Solids) to be installed per the manufacturer's recommendation in the new restroom.
 - d. Resilient rubber flooring (Nora, Noraplan Environcare art. #2463) shall be installed in the new storage area.
 3. Restroom (location #2) –
 - a. The concrete floor should be saw cut and removed to full depth. Existing plumbing waste and heat supply are in/under the concrete floor in unknown locations and must be shut off prior to floor removal.
 - b. After the new plumbing work is completed and the heat supply reconnected, the concrete floor should be reinstalled

at a minimum 4" depth, reinforced and doweled (18" O.C.) on all four sides. The floor should be sloped to the new floor drain.

- c. Ceramic tile flooring (CT-2, Daltile Veranda Solids) to be installed per the manufacturer's recommendation in the new restroom.
 4. Marble thresholds must be used where indicated on the Flooring and Wall Covering Plan. The Owner shall select from the manufacturer's range of colors.
- C. Plumbing Fixtures
1. Install new toilets (Kohler Kelston K-3754, white) and toilet seats (Bemis #7650TJ – white).
 2. Install new urinals (Zurn Z5798) and urinal flush valves (Zurn ZEG 6003 EV).
 3. Install new faucet (Zurn Sierra Z7443XL) and lavatory (Kohler Kelston K-2382 under-mount, white). (location #1)
 4. Install new faucet (Zurn Sierra Z7443XL) and lavatory (Kohler Pinoir K-2035 wall-mount, white). (location #2)
 5. Install new shower valves (Zurn Temp-Gard Z7100-SS-LH) and shower heads (Zurn Temp-Gard Z7000 HW).
 6. Existing plumbing supply and waste piping should be permanently capped or removed if not being re-used.
 7. All fixtures should be equipped or supplied with supply shut-off valves so each fixture can be isolated without shutting off the entire restroom.
 8. New waste vents, appropriately sized shall be installed through the roof and the penetrations properly sealed.
- D. Ceiling
1. Install 2'x2' linear grid system (Armstrong Suprafine XL) with moisture resistant acoustical tiles (Armstrong #1734) per manufacturer's recommendation where indicated. Ceiling height should be 8'0" AFF.
 2. Install 5/8" moisture resistant drywall above the showers. Ceiling height should be 8'0" AFF.
- E. Lighting/Electrical
1. All existing lighting/electrical should be removed and circuits properly terminated if not being re-used.
 2. The following light fixture types correspond to the Lighting & Power Plan location drawing:
 - "A" – 2'x2' LED Troffer, 3200 lumen, 4000k CCT (basis of design – Cooper Metalux 2GR-LD1-32-A-UNV)
 - "B" – 6" Recessed LED Can Light, 900 lumen, 4000k CCT (basis of design – Cooper Halo ML56 LED System)
 - "D" – 6" Recessed LED Can Light Wet Location Listing, 900 lumen, 4000kCCT (basis of design – Cooper Halo ML56 LED

System)

"E" – 2' Wall Mounted LED Vanity Light, 2100 lumen, 4000k CCT
(basis of design – Cooper Neo-Ray S23DW-1L40-2-UNV)

3. Lights in each restroom should be controlled by ceiling mounted, multi-technology, occupancy sensors with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
4. Lights in hallway (location #1) should be controlled by ceiling mounted, multi-technology, occupancy sensors with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
5. All existing restroom electrical outlets should be upgraded to GFCI outlets.
6. Exhaust fans should be controlled to run with occupancy in restroom.
7. All receptacle, switch and electrical box covers should be stainless steel.
8. Install dedicated electrical circuit, if applicable, and appropriate connections for the electric floor heating system.

F. Accessories

1. Install 18" stainless steel wall hung continuous flange urinal screens between urinal and lavatory (location #1), (basis of design - General Partitions WHF-3).
2. Install 18" stainless steel wall hung continuous flange urinal screens between urinal and toilet (location #2), (basis of design - General Partitions WHF-3).
3. Install new 36" painted metal door (w/louver) and frame to the restroom (location #1). Owner to select color. Door hardware to include: door bolt with occupancy indicator (Schlage B571-626); commercial grade kick down doorstop; properly sized closing device; stainless steel door pulls (Rockwood No. 110); stainless door push plates (Rockwood No. 70RC)
4. Install new 32" painted UL listed fire rated door (w/ UL listed fire rated door louver) and frame to the restroom (location #2) to maintain the required 2 hour fire rating of the wall assembly. This is not an emergency egress door. Owner to select color. Fire rated door hardware shall be UL listed, commercial grade and include an automatic latching device to engage the latch bolt, properly sized closing device and, in addition, a door bolt with occupancy indicator.
5. Install new 20" x 30" frameless, beveled edge mirrors above each lavatory.
6. Vanity and backsplashes should be wall mounted and constructed of solid surface material (e.g. Corian). The vanity should be 36" w x 24" d with 4" backsplashes on two sides. The face and side trim of the vanity should also be covered in the same solid surface material. The vanity should be well supported to the wall. (location #1)
7. Install stainless steel shower curtain rods and vinyl shower

- curtains.
8. Owner will supply and install paper product dispensers.

G. Walls

1. The following new wall construction types corresponds to the New Wall Construction location drawing:
 - a. Type A – 2 hour UL fire rated wall assembly. All penetrations and joints must be appropriately sealed to maintain the fire rating, full height.
 - b. Type C – 3 5/8" metal studs covered by the corresponding wall finish, full height.
 - c. Type D – 3 5/8" metal studs covered by the corresponding wall finish, top of wall is 6'0" AFF.
2. The following wall finishes correspond to the Flooring and Wall Covering location drawing:
 - a. Type 1 – left blank intentionally.
 - b. Type 2 – 5/8" painted moisture resistant drywall, primer coat and two finish coats.
 - c. Type 3 – cement board and ceramic wall tile (CT-1, Daltile Keystones) to 72" AFF. Painted moisture resistant drywall, primer coat and two finish coats above ceramic wall tile.
 - d. Type 4 – cement board and ceramic wall tile, full height.
 - e. Type 5 – painted concrete block, two finish coats.
3. Install ceramic base tile (B-1, Daltile Keystones) around full perimeter of restroom to match floor tile.
4. Install 4" rubber baseboard on all resilient floors. Owner to select from range of manufacturer's colors.

H. Heating

1. Heating to the restrooms shall be provided by electric floor heating systems installed between the concrete floor and the ceramic floor tile.
2. Install 120v electric heating floor mats in all areas, except shower, of each restroom. The mats shall be UL listed, water resistant, no thicker than 1/8", produce at least 41 BTU per sq.ft., have consistent wire spacing of less than 2", be controlled by a programmable thermostat and offer a minimum 25 year warranty (basis of design - NuHeat Electric Floor Heating Systems).
3. The system shall be tested and installed in accordance with manufacturer's recommendations.

I. Mechanical

1. Existing exhaust fan EF-4, and related duct work, should be removed.
2. A new roof mounted exhaust fan should be installed (location #1). The new unit should be a UL listed direct drive, 120v, minimum 800 cfm at 0.25 wc, downblast, spun aluminum centrifugal style fan (basis of design – Greenheck Model G).

3. A new roof mounted exhaust fan should be installed (location #2). The new unit should be a UL listed direct drive, 120v, minimum 150 cfm at 0.25 wc, downblast, spun aluminum centrifugal style fan (basis of design – Greenheck Model G).
4. The new exhaust fans should include the appropriate roof curb, curb seal, gravity damper, birdscreen and controls. Noise and vibration are an issue since the installation is near sleeping quarters and the unit should be specified to minimize both noise and vibration.
5. Appropriately sized rigid insulated duct work shall be installed to provide exhaust ventilation from the restroom/hallway (location #1) and the individual restroom (location #2). Duct work shall include any necessary dampers to ensure system is balanced. Diffusers shall integrate with the ceiling system.

1.7 Fire Station #3 Locker Room Work (Alternate Bid)

- A. This work consists of the renovation of an existing locker room facility (alternate bid).
- B. Floors
 1. Remove the existing floor covering layer(s). The flooring should be tested for asbestos, removed and disposed of consistent with all rules and regulations for asbestos containing materials if applicable.
 2. Remove the existing concrete 4" locker risers and provide a smooth floor surface.
 3. The entire floor should be prepped and new resilient rubber flooring (Nora, Noraplan Environcare art. #2463) installed per manufacturer's recommendation. Owner to select from full range of manufacturer's colors.
- C. Lockers
 1. Remove existing lockers and overhead cabinets.
 2. Install 16 new lockers in two rows of 8 lockers each. Lockers should be First Responder Heavy Duty Personnel Lockers (DeBourgh Mfg. Co.) with 24" d x 18" w x 61" h uppers and 34" d x 18" w x 17" h drawer and bench base. Lockers should include a full width clothing rod, full width adjustable shelf, 7% louver, continuous hinge and sentry 1 latch. Owner to select color from manufacturer's full range.
- D. Ceiling
 1. Remove the existing ceiling system.
 2. Install 2'x2' linear grid system (Armstrong Suprafine XL) with moisture resistant acoustical tiles (Armstrong #1734) per manufacturer's recommendation where indicated. Ceiling height should be 8'0" AFF.

E. Lighting/Electrical

1. All existing lighting/electrical should be removed and circuits properly terminated if not being re-used.
2. The following light fixture types correspond to the Lighting & Power Plan location drawing:
"A" – 2'x2' LED Troffer, 3200 lumen, 4000k CCT (basis of design – Cooper Metalux 2GR-LD1-32-A-UNV)
3. Lights should be controlled by ceiling mounted, multi-technology, occupancy sensor with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
4. Install a new electrical outlet on the existing circuit as shown on the Lighting and Power Plan drawing.
5. The exhaust fan should be controlled to run with occupancy in either restroom.
6. All receptacle, switch and electrical box covers should be stainless steel.

F. Accessories

1. The existing radiator cover should be painted to match the wall color.

G. Walls

1. The following wall finishes correspond to the Flooring and Wall Covering location drawing:
 - a. Type 5 – painted concrete block, two finish coats.
2. Install 4" rubber baseboard on all resilient floors. Owner to select from range of manufacturer's colors.

H. Mechanical

1. The duct work and diffuser planned for the hallway (base bid) should be relocated to the center of the locker room area.

1.8 Fire Station #4 Locker Room Work (Alternate Bid)

A. This work consists of the renovation of an existing locker room facility (alternate bid).

B. Floors

1. Remove the existing concrete 4" locker risers and provide a smooth floor surface.
2. The entire floor should be prepped and new resilient rubber flooring (Nora, Noraplan Environcare art. #2463) installed per manufacturer's recommendation. Owner to select from full range of manufacturer's colors.

C. Lockers

1. Remove existing lockers and overhead cabinets.
2. Install 16 new lockers in two rows of 8 lockers each. Lockers should be First Responder Heavy Duty Personnel Lockers (DeBourgh Mfg. Co.) with 24" d x 18" w x 61" h uppers and 34" d x 18" w x 17" h drawer and bench base. Lockers should include a full width clothing rod, full width adjustable shelf, 7% louver, continuous hinge and sentry 1 latch. Owner to select color from manufacturer's full range.

D. Ceiling

1. Install 2'x2' linear grid system (Armstrong Suprafine XL) with moisture resistant acoustical tiles (Armstrong #1734) per manufacturer's recommendation where indicated. Ceiling height should be 8'0" AFF.

E. Lighting/Electrical

1. All existing lighting/electrical should be removed and circuits properly terminated if not being re-used.
2. The following light fixture types correspond to the Lighting & Power Plan location drawing:
"A" – 2'x2' LED Troffer, 3200 lumen, 4000k CCT (basis of design – Cooper Metalux 2GR-LD1-32-A-UNV)
3. Lights should be controlled by ceiling mounted, multi-technology, occupancy sensor with power pack (Lutron LOS-CDT-500R-WH with power pack Lutron PP-120H).
4. The exhaust fan should be controlled to run with occupancy in the adjacent restroom.
5. All receptacle, switch and electrical box covers should be stainless steel.

F. Accessories

1. The existing heating vent cover should be replaced.

G. Walls

1. The following wall finishes correspond to the Flooring and Wall Covering location drawing:
 - a. Type 5 – painted concrete block, two finish coats.
2. Install 4" rubber baseboard on all resilient floors. Owner to select from range of manufacturer's colors.

H. Mechanical

1. The duct work and diffuser planned for the hallway (base bid) should be relocated to the center of the locker room area.

SECTION 01 10 00

SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work by Owner.
5. Work under separate contracts.
6. Future work.
7. Purchase contracts.
8. Owner-furnished products.
9. Contractor-furnished, Owner-installed products.
10. Access to site.
11. Coordination with occupants.
12. Work restrictions.
13. Specification and drawing conventions.

1.3 PROJECT INFORMATION

A. Project Identification: FIRE STATIONS 3 & 4 RESTROOM RENOVATIONS

1. Project Locations: Fire Station #3 – 2130 Jackson Ave, Ann Arbor, Michigan 48103.
Fire Station #4 – 2415 Huron Parkway, Ann Arbor, Michigan 48104

B. Owner: City of Ann Arbor.

1. Owner's Representative: Matthew Kulhanek, 734-994-9124, email:
mjkulhanek@a2gov.org

C. Architect: n/a

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following:

1. Renovate restroom (base bid) and locker room facilities (alternate bid) in two fire stations.

B. Type of Contract

1. Project will be constructed under a single prime contract.

C. Before commencing Work, submit an updated copy of the Contractor's construction schedule showing the sequence, commencement and completion dates for the Work.

1.5 PURCHASE CONTRACTS

A. General: n/a

1.6 ACCESS TO SITE

- A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

- B. General: Contractor shall have limited use of Project site for construction operations as indicated by the Owner and as indicated by requirements of this Section.
- C. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine construction operations to the project site and other areas agreed to in advance by the owner.
 - 2. Driveways, Walkways and Entrances: Keep driveways, parking garage, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
- D. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weather-tight condition throughout construction period. Repair damage caused by construction operations.

1.7 COORDINATION WITH OCCUPANTS

- A. Owner Occupancy: Owner may occupy the premises during some part of the construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
 - 2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.
- B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.
 - 1. Owner will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
 - 2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.
 - 3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 6:00 a.m. to 6:00 p.m., Monday through Friday, except as otherwise indicated.
 - 1. Weekend Hours: by approval of the Owner in advance.
 - 2. Early Morning Hours: by approval of the Owner in advance.

3. Hours for Utility Shutdowns: after hours, notify Owner 48 hours in advance.
 4. Hours for Core Drilling or other noisy activity: work with Owner to determine hours of operation, notify Owner 48 hours in advance
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
1. Notify Construction Manager and Owner not less than two days in advance of proposed utility interruptions.
 2. Obtain Construction Manager's and Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
1. Notify Construction Manager and Owner not less than two days in advance of proposed disruptive operations.
 2. Obtain Construction Manager's and Owner's written permission before proceeding with disruptive operations.
- E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor air intakes.
- F. Controlled Substances: Use of tobacco products and other controlled substances within the existing building is not permitted.
- G. Employee Identification: Provide identification tags for Contractor personnel working on the Project site. Require personnel to utilize identification tags at all times.
- H. Employee Screening: Comply with Owner's requirements regarding background screening of Contractor personnel working on the Project site.
1. Maintain list of approved screened personnel with Owner's Representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations are scheduled on the Drawings and defined in the corresponding specification sections.
 3. Keynoting: Materials and products are identified by reference keynotes and long-hand notes on the Drawings,

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

**SECTION 01 60 00
PRODUCT REQUIREMENTS**

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Sections:
 - 1. Division 01 Section "References" for applicable industry standards for products specified.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model .. number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process . to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.4 ACTION SUBMITTALS

- A. Comparable Product Requests: Submit request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles ..
 - 1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article ..
 - 2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor through Construction Manager of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect does not issue a decision on use of a comparable . product request within time allocated.
- B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.5 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used ..

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products .using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 6. Protect stored products from damage and liquids from freezing.
 - 7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed ..
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 - 3. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
 6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 3. Products:
 - a. Restricted List: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered, unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.
 4. Manufacturers:
 - a. Restricted List: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered, unless otherwise indicated.
 - b. Nonrestricted List: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
 5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.
- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on

whether a proposed product matches.

1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied: Architect may return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 01 73 00

EXECUTION

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner-installed products.
 - 6. Progress cleaning.
 - 7. Starting and adjusting.
 - 8. Protection of installed construction.
 - 9. Correction of the Work.
- B. Related Sections:
 - 1. Division 01 Section "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work .
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
 - 1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
 - 2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
 - 3. Products: List products to be used for patching and firms or entities that will perform patching work.
 - 4. Dates: Indicate when cutting and patching will be performed.
 - 5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect.
 - a. List services and systems that will be relocated
 - b. List services that will be temporarily out of service. Indicate how long services and systems will be disrupted.
 - c. List temporary services that will be maintained for periods when permanent services are disrupted. Indicate how long services and systems will be in operation.

- D. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.
- E. Certified Surveys: Submit two copies signed by professional engineer.

1.5 QUALITY ASSURANCE

- A. Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Construction Manager 48 hours prior in writing of locations and details of cutting and await directions from the Construction Manager before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include but are not limited to the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Conveying systems.
 - i. Electrical wiring systems.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Exterior wall construction.
 - d. Equipment supports.
 - e. Piping, ductwork, vessels, and equipment.
 - f. Noise- and vibration-control elements and systems.
 - 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Cutting and Patching Conference: Before proceeding, meet at Project site with Construction Manager and parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- D. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

1.6 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
 - 1. For projects requiring compliance with sustainable design and construction practices and procedures, utilize products for patching that comply with requirements of Division 01 Section "Sustainable Design Requirements."
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 - 4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 - 5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and/or Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck

measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to layout the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect and Construction Manager promptly.
- B. General: Engage a professional engineer to layout the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply ..
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Architect and Construction Manager when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.
- D. Building Lines and Levels: Locate and layout control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Construction Manager.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect and Construction Manager. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect and Construction Manager before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site,

referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces of new work.
 - a. Notify Architect and Construction Manager promptly before proceeding with any demolition or new work for any area where minimum headroom cannot be achieved.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.6 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 1. Cut in-place construction to provide for installation of other components or performance of

other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Temporary Support: Provide temporary support of work to be cut.
- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements of Division 01 Section "Summary."
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.
- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - a. Do not over cut any finished (exposed) surface to remain.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Pre-installation Conferences: Include Owner's construction personnel at pre-installation conferences covering portions of the Work that are to receive Owner's work. Attend pre-installation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Utilize containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where more than one installer has worked.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces .
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Temporary Facilities and Controls." Division 01 Section "Construction Waste Management and Disposal."
- H. 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 at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the

remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.11 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION

SECTION 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 WASTE MANAGEMENT GOALS FOR THE PROJECT

- A. The Owner has established that this Project shall minimize the creation of construction and demolition waste on the job site. Factors that contribute to waste, such as over packaging, improper storage, ordering error, poor planning, breakage, mishandling, and contamination, shall be minimized. Of the inevitable waste that is generated, as many of the waste materials as economically feasible shall be reused, salvaged, or recycled. Waste disposal in landfills shall be minimized.

1.2 RELATED DOCUMENTS

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

1.3 SUMMARY

- A. This Section includes administrative and procedural requirements for the following:

1. Salvaging nonhazardous demolition and construction waste.
2. Recycling nonhazardous demolition and construction waste.
3. Disposing of nonhazardous demolition and construction waste.

- B. Related Sections include the following:

1. Division 01 Section "Temporary Facilities and Controls" for environmental-protection measures during construction, and location of waste containers at Project site.
2. Division 02 Section "Selective Structure Demolition/Dismantling/Salvage" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
3. Division 04 Section "Unit Masonry" for disposal requirements for masonry waste.
4. Division 04 Section "Stone Masonry" for disposal requirements for excess stone and stone waste.
5. Division 31 Section "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

- C. References, Resources

1. WasteSpec, Triangle J Council of Governments, PO Box 12276, Research Triangle Park, NC 27709, <ftp://ftp.tjcog.org/pub/tjcog/regplan/solidwst/wastspec.pdf>
2. California Integrated Waste Management Board, 916/255-2296, e-mail: opa@ciwmb.ca.gov

1.4 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging. Land clearing debris including soil, vegetation, rocks, etc. are not to be included.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition Or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.5 PERFORMANCE REQUIREMENTS

- A. General: Develop waste management plan that results in end-of-Project rates for salvage/recycling of 75 percent by weight of total waste generated by the Work.

1.6 SUBMITTALS

- A. Waste Management Plan: Submit an electronic copy of the plan via email as a PDF electronic file within 10 calendar days after receipt of Notice to Proceed, or prior to any waste removal, whichever occurs sooner.
- B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, Submit an electronic copy of the report via email as a PDF electronic file. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons.
 - 4. Quantity of waste salvaged, both estimated and actual in tons.
 - 5. Quantity of waste recycled, both estimated and actual in tons.
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- C. Waste Reduction Calculations: Before request for Substantial Completion, submit a PDF of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- F. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Landfill and Incinerator Disposal Records: Comply with submittal requirements of the City of Ann Arbor. Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- H. Qualification Data: For Waste Management Coordinator and refrigerant recovery technician.
- I. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

1.7 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council. Waste management coordinator may also serve as LEED coordinator.
- B. Refrigerant Recovery Technician Qualifications: Certified by EPA-approved certification program.
- C. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review requirements for documenting quantities of each type of waste and its
 - 2. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 3. Review waste management requirements for each trade.

1.8 WASTE MANAGEMENT PLAN

- A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

- B. Waste Identification: Indicate anticipated types and quantities of demolition and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.
- C. Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.
 - 1. Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.
 - 2. Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 3. Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.
 - 4. Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.
 - 5. Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.
 - 6. Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location on Project site where materials separation will be located.
- D. Cost/Revenue Analysis: Indicate total cost of waste disposal as if there was no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:
 - 1. Total quantity of waste by weight or volume, but must be consistent throughout.
 - 2. Estimated cost of disposal (cost per unit). Include hauling and tipping fees and cost of collection containers for each type of waste.
 - 3. Total cost of disposal (with no waste management).
 - 4. Revenue from salvaged materials.
 - 5. Revenue from recycled materials.
 - 6. Savings in hauling and tipping fees by donating materials.
 - 7. Savings in hauling and tipping fees that are avoided.
 - 8. Handling and transportation costs. Include cost of collection containers for each type of waste.
 - 9. Net additional cost or net savings from waste management plan.
- E. On-site training, monitoring, and reporting: Contractor to designate a waste management coordinator who should also be responsible for ensuring that subcontractors and suppliers comply with the plan. Include descriptions of on-site training, monitoring and reporting to be done by each subcontractor and supplier.
- F. Forms: Prepare waste management plan on equivalent forms included at end of Part 3.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement waste management plan as approved by Owner and Construction Manager. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with Division 01 Section "Temporary Facilities and Controls" for operation, termination, and removal requirements.
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.
- C. Meetings: Contractor shall conduct Construction Waste Management meetings. Meetings shall include subcontractors affected by the Waste Management Plan. At a minimum, waste management goals and issues shall be discussed at the following meetings:
 - 1. Pre-bid meetings

2. Pre-construction meeting
 3. Regularly scheduled job-site meetings
- D. Training: The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the Project. Workers, subcontractors, and suppliers shall be trained on proper waste management procedures, as appropriate for the Work occurring at Project site.
1. Distribute waste management plan to the Job-Site Foreman, each Subcontractor concerned within three days of submittal return.
 2. Distribute waste management plan to entities when they first begin work on-site. Review plan procedures and locations established for salvage, recycling, and disposal.
- E. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Separation Facilities: The Contractor shall designate a specific area or areas to facilitate separation of materials for potential reuse, salvage, recycling, and return. Recycling and waste bin areas are to be kept neat and clean and clearly marked in order to avoid commingling of materials. Bins shall be protected during non-working hours from off-site contamination.
 2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.
 3. Materials Handling Procedures: Materials to be recycled shall be protected from contamination and shall be handled, stored, and transported in a manner that meets the requirements set by the designated facilities for acceptance.
 4. Transportation: A description of the means of transportation of the recyclable materials (whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler and removed from the site) and destination of materials. Provide an estimate of how often bins will need to be emptied.
- F. Hazardous Wastes: Hazardous wastes shall be separated, stored, and disposed of according to local regulations.

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Reuse in the Work:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until installation.
 4. Protect items from damage during transport and storage.
 5. Install salvaged items to comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make items functional for use indicated.
- B. Salvaged Items for Sale and Donation: Not permitted on Project site.
- C. Salvaged Items for Owner's Use:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner.
 5. Protect items from damage during transport and storage.
- D. Doors and Hardware: Brace open end of door frames. Except for removing door closers, leave door hardware attached to doors.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Recycling Receivers and Processors: List below is provided for information only; available recycling receivers and processors include, but are not limited to, the following:

1. Calvert's Roll-Off Containers, Inc. 7891 Jackson Road, (just west of Baker Road), Ann Arbor, MI, 48103 P: 734-426-2280
 2. Construction Recycling Systems, Inc, 15400 72nd Street South Haven, MI 49090-8989 P. 269.637.1387
 3. Allied Waste Services, P.O. Box 109 ,Jenison, M149429, 1.877.MY.TRASH
 4. Veolia Environmental Services, 10690 W. 6 Mile road, Northville, MI48167 P: 248.349.7230 F: 248.347.9899 - these guys will sort
 5. Synergy Environmental, 9864 E. Grand River, Suite 110-140, Brighton, MI P: 866.872.7450 F: 810.229.9085
 6. Metal Recycling Unlimited, 8830 Jackson Rd, Dexter, MI 48130, 734-424-0371
 7. Select Metals Recycling, 5455 S. State Street, Ann Arbor, M148108, (734) 662-0317
 8. Ann Arbor Michigan Scrap Metal, 200 East Liberty St, Ann Arbor, M148104, (734)418-0940
- C. Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.
- D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.4 RECYCLING DEMOLITION WASTE

- A. Asphaltic Concrete Paving: Break up and transport paving to asphalt-recycling facility.
- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.
- C. Masonry: Remove metal reinforcement, anchors, and ties from masonry and sort with other metals.
 1. Clean and stack undamaged, whole masonry units on wood pallets.
- D. Wood Materials: Sort and stack members according to size, type, and length. Separate lumber, engineered wood products, panel products, and treated wood materials.
- E. Metals: Separate metals by type.
 1. Structural Steel: Stack members according to size, type of member, and length.
 2. Remove and dispose of bolts, nuts, washers, and other rough hardware.
- F. Asphalt Shingle Roofing: Separate organic and glass-fiber asphalt shingles and felts. Remove and dispose of nails, staples, and accessories.
- G. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location. Remove edge trim and sort with other metals. Remove and dispose of fasteners.
- H. Acoustical Ceiling Panels and Tile: Stack large clean pieces on wood pallets and store in a dry location.
 1. Separate suspension system, trim, and other metals from panels and tile and sort with other metals.
- I. Carpet and Pad: Roll large pieces tightly after removing debris, trash, adhesive, and tack strips.
 1. Store clean, dry carpet and pad in a closed container or trailer provided by Carpet Reclamation Agency, carpet manufacturer, or carpet recycler.
- J. Equipment: Drain tanks, piping, and fixtures. Seal openings with caps or plugs. Protect equipment

from exposure to weather.

- K. Plumbing Fixtures: Separate by type and size.
- L. Piping: Reduce piping to straight lengths and store by type and size. Separate supports, hangers, valves, sprinklers, and other components by type and size.
- M. Lighting Fixtures: Separate lamps by type and protect from breakage.
- N. Electrical Devices: Separate switches, receptacles, switchgear, transformers, meters, panelboards, circuit breakers, and other devices by type.
- O. Conduit: Reduce conduit to straight lengths and store by type and size.

3.5 RECYCLING CONSTRUCTION WASTE

- A. Packaging:
 - 1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
 - 2. Polystyrene Packaging: Separate and bag materials.
 - 3. Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
 - 4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.
- B. Site-Clearing Wastes: Chip brush, branches, and trees at landfill facility.
- C. Wood Materials:
 - 1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
 - 2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
- D. Gypsum Board: Stack large clean pieces on wood pallets and store in a dry location.
 - 1. Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.
 - a. Comply with requirements in Division 32 Section "Plants." for use of clean ground gypsum board as inorganic soil amendment.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 - 1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn waste materials.
- C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
 - 5. Repair of the Work.
- B. Related Requirements:
 - 1. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.2 ACTION SUBMITTALS

- A. Product Data: For cleaning agents.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion
- C. Certified List of Incomplete Items: Final submittal at Final Completion

1.3 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest control inspection.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items specified in other Sections.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect or

Owner. Label with manufacturer's name and model number where applicable.

- a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's or Owner's signature for receipt of submittals.
5. Submit test/adjust/balance records.
 6. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
1. Advise Owner of pending insurance changeover requirements.
 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 3. Complete startup and testing of systems and equipment.
 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 5. Advise Owner of changeover in heat and other utilities.
 6. Participate with Owner in conducting inspection and walkthrough with local emergency responders.
 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 8. Complete final cleaning requirements, including touchup painting.
 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the work will be completed and ready for final inspection and tests. On receipt of request, Architect or Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for final completion.

1.6 FINAL COMPLETION PROCEDURES

- A. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
1. Submit a final Application for Payment according to Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit pest-control final inspection report and warranty.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.
- B. Inspection: Submit a written request for final inspection to determine acceptance. On receipt of request, Architect or Owner will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order,.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Submit list of incomplete items in the following format:
 - a. MS Excel electronic file. Architect or Owner will return annotated copy.
 - b. PDF electronic file. Architect or Owner will return annotated copy.

1.8 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch (215-by-280-mm) paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
 - 4. Warranty Electronic File: Scan warranties and bonds and assemble complete warranty and bond submittal package into a single indexed electronic PDF file with links enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:

- a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - c. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - d. Sweep concrete floors broom clean in unoccupied spaces.
 - e. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - f. 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. Polish mirrors and glass, taking care not to scratch surfaces.
 - g. Remove labels that are not permanent.
 - h. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - i. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - j. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - k. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - l. Leave Project clean and ready for occupancy.
- C. Pest Control: Comply with pest control requirements in Section 015000 "Temporary Facilities and Controls." Prepare written report.

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations before requesting inspection for determination of Substantial Completion.
- B. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 - 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 - 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 - 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
 - 4. Replace burned-out bulbs, bulbs noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

END OF SECTION

SECTION 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Maintenance manuals for the care and maintenance of products, materials, finishes, systems and equipment.
- B. Related Sections include the following:
 - 1. Division 01 Section "Closeout Procedures" for submitting operation and maintenance manuals.
 - 2. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 SUBMITTALS

- A. Initial Submittal: Submit 2 draft copies of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit one copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit 3 copies of each corrected manual within 15 days of receipt of Architect's comments.

1.5 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.

- 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."
- F. Number of Copies: Two (2)
- G. Format: Bound hard copy and electronic version on CD

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page: Enclose title page in transparent plastic sleeve. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Architect.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
 - 1. Binders: Heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents. Indicate volume number for multiple-volume sets.
 - 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section. Mark each tab to indicate contents. Include typed list of products and major components of equipment

included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.

3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software diskettes for computerized electronic equipment.
4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text. Additionally, submit all drawings on disk plotted full scale "PDF" format and include in protecting plastic sleeves and bound into manual at same locations as bound drawings.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.3 EMERGENCY MANUALS

- A. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- B. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- C. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- D. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

2.4 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 1. System, subsystem, and equipment descriptions.
 2. Performance and design criteria if Contractor is delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.

- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.
- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.5 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would *affect* validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.6 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard printed maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training videotape, if available.
- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
- F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent if required by Owner:
- H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data

indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
- F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
- G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION

SECTION 02 41 19
SELECTIVE DEMOLITION

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes:
 - 1. Demolition and removal of selected portions of building or structure.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.
- C. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 PREINSTALLATION MEETINGS

- A. Pre-demolition Conference: Conduct conference at Project site.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For refrigerant recovery technician.
- B. Pre-demolition Photographs or Video: Submit before Work begins.
- C. Statement of Refrigerant Recovery: Signed by refrigerant recovery technician.

1.5 CLOSEOUT SUBMITTALS

- A. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Refrigerant Recovery Technician- Qualifications: Certified by an EPA-approved certification program.

1.7 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
 - 1. Hazardous materials will be removed by Owner before start of the Work.
 - 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Hazardous Materials: Hazardous materials are present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.

1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- F. Storage or sale of removed items or materials on-site is not permitted.
- G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSE A 10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities *have* been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- D. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
- E. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs .

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
1. Comply with requirements for existing services/systems interruptions specified in Section 011000 "Summary."
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 2. Arrange to shut off indicated utilities with utility companies.
 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary

- services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material.

3.3 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Comply with requirements for access and protection specified in Section 015000 "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
- C. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 2. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 3. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 4. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 5. Dispose of demolished items and materials promptly. Comply with requirements in Section 017419 "Construction Waste Management and Disposal."
- B. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow demolished materials to accumulate on-site.
 - 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 3. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
 - 4. Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- B. Burning: Do not burn demolished materials.
- C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.6 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

SECTION 09 29 00

GYPSUM BOARD SYSTEMS

PART 1 – GENERAL

1.1 SUMMARY

- A. This Section includes interior non-load bearing gypsum board systems on steel framing members for the following applications:
 - 1. Partition walls, framed soffits, furred masonry walls, etc.
 - 2. Ceilings, suspended soffits, etc.
- B. Related Sections include the following:
 - 1. Division 05 Section "Cold-Formed Metal Framing" for exterior and interior load-bearing and exterior non-load-bearing wall studs; floor joists; and ceiling joists.
 - 2. Division 09 Section "Tiling" for cementitious backer units installed as substrates for ceramic tile.
 - 3. Division 09 painting Sections for primers applied to gypsum board surfaces.

1.2 SUBMITTALS

- A. Product Data: Submit copies of manufacturer's product specifications and installation instructions for each gypsum drywall product required, including other data as may be required to show compliance with these Specifications. Include data for fire-rated assemblies.
- B. Samples: For the following products:
 - 1. Trim Accessories: Full-size Sample in 12-inch-long length for each trim accessory indicated.
- C. **LEED** Submittals LEED-NC version 2.2:
 - 1. Submit all **LEED** submittal information on the **LEED** Material Credits Documentation Worksheet referenced in Submittal Procedures section 01 3300.
 - 2. Credit MR4.1 and MR4.2: Submit product data stating the percentage of postconsumer and pre-consumer (post-industrial) recycled content of each product and material by weight. Submit material cost for same.
 - 3. Credit MR5.1 and MR5.2: Submit a statement from the manufacturer stating the distance between the project location and final manufacturing locations; stating the distance between the project location and extraction/harvest/recovery site; and the percentage of product, by weight, that is within 500 miles for both the extraction and manufacture.
 - 4. Credit EQ 4.1 (low VOC adhesives and sealants): Submit product data for installation adhesives stating the VOC content of adhesives used on the project.

1.3 QUALITY ASSURANCE

- A. Fire-Resistive Rating: Where indicated for fire-resistance ratings, provide materials and installations identical with applicable assemblies, which have been tested per ASTM E 119 and listed by a testing laboratory recognized by authorities having jurisdiction.
- B. References:
 - 1. Steel Framing Standard: Comply with applicable requirements of ASTM C 754 for installation of steel framing for gypsum board and as specified.
 - 2. Gypsum Board Standard: Comply with applicable requirements of ANSI/ASTM C 840 for application and finishing of gypsum board and as specified.
- C. Allowable Tolerances: 1/16" offsets between planes of board faces, and 1/8" in 8'-0" for plumb, level, warp and bow.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials in manufacturer's unopened containers, packages or bundles identified with manufacturer's name, brand, type and grade. Store inside in a dry area and protect from dampness and deterioration. Protect ready-mixed compounds (if any) from freezing.

1.5 PROJECT CONDITIONS

- A. Environmental Requirements: Maintain interior ambient temperatures at not less than 55 degrees F. for a period of at least 48 hours prior to application of gypsum board and joint treatment application, during application, and subsequently until joint treatment materials are dry. Ventilate as required.
- B. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written recommendations, whichever are more stringent for all panel products.
- C. Do not install panels that are wet, those that are moisture damaged, and those that are mold damaged.
 - 1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
 - 2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 NON-LOAD-BEARING STEEL FRAMING COMPONENTS

- A. General Material/Product Requirements:
 - 1. Recycled Content: Provide products produced from recycled materials to the greatest extent possible.
 - 2. Material and Product Sources: Provide materials and products harvested, extracted, or reclaimed and manufactured, within 500 miles of the Project site to the greatest extent possible.
- B. Framing Members, General: Comply with ASTM C 754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal, unless otherwise indicated.
 - 2. Protective Coating: ASTM A 653/A 653M, G40 ASTM A 653/A 653M, or hot-dip galvanized, unless otherwise indicated.
- C. Cast-in-Place and Postinstalled Anchors in Concrete: Anchors of type indicated below, fabricated from corrosion-resistant materials, with holes or loops for attaching hanger wires, and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction, as determined by testing according to ASTM E 488 conducted by a 'qualified independent testing agency.
 - 1. Cast-in-place type designed for attachment to concrete forms.
 - 2. Chemical anchor.
 - 3. Expansion anchor.
- D. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hangers of type indicated, and with capability to sustain, without failure, a load equal to 10 times that imposed by ceiling construction, as determined by testing according to ASTM E 1190 conducted by a qualified independent testing agency.
- E. Wire Ties: ASTM A 641 (ASTM A 641 M), Class 1 zinc coating, soft temper, 0.162-inch (4.1-mm) diameter.
- F. Wire Hangers: ASTM A 641 (ASTM A 641M), Class 1 zinc coating, soft temper, 0.162inch (4.1-mm) diameter.
- G. Hanger Rods: Mild steel and zinc coated or protected with rust-inhibitive paint.

- H. Flat Hangers: Mild steel and zinc coated or protected with rust-inhibitive paint.
- I. Angle-Type Hangers: Angles with legs not less than 7/8 inch (22.2 mm) wide, formed from 0.0635-inch- (1.6-mm) thick galvanized steel sheet complying with ASTM A 653, G 90 (ASTM A 653M, Z 180) coating designation, with bolted connections and 5/16-inch (8mm) diameter bolts.
- J. Fasteners for Metal Framing: Provide fasteners of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel framing and furring members securely to substrates involved; complying with the recommendations of gypsum board manufacturers for applications indicated.

2.2 STEEL FRAMING FOR FRAMED ASSEMBLIES

- A. Steel Studs and Runners: ASTM C 645.
 - 1. Minimum Base-Metal Thickness: 0.0312 inch.
 - 2. Depth: As indicated on Drawings.
- B. Slip-Type Head Joints: Where indicated, provide one of the following:
 - 1. Single Long-Leg Runner System: ASTM C 645 top runner with 2-inch- deep flanges in thickness not less than indicated for studs, installed with studs friction fit into top runner and with continuous bridging located within 12 inches of the top of studs to provide lateral bracing.
 - 2. Double-Runner System: ASTM C 645 top runners, inside runner with 2-inch-deep flanges in thickness not less than indicated for studs and fastened to studs, and outer runner sized to friction fit inside runner.
 - 3. Deflection Track: Steel sheet top runner manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Steel Network Inc. (The); VertiClip SLD or VertiTrack VTD Series.
 - 2) Superior Metal Trim; Superior Flex Track System (SFT).
- C. Firestop Tracks: Top runner manufactured to allow partition heads to expand and contract with movement of the structure while maintaining continuity of fire-resistance rated assembly indicated; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - 1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Fire Trak Corp.; Fire Trak.
 - b. Metal-Lite, Inc.; The System.
- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base-Metal Thickness: 0.0312 inch.
- E. Cold-Rolled Channel Bridging: 0.0538-inch bare-steel thickness, with minimum 1/2-inch-wide flanges.
 - 1. Depth: 1-1/2 inches.
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.
- F. Hat-Shaped, Rigid Furring Channels: ASTM C 645.
 - 1. Minimum Base Metal Thickness: 0.0312 inch.
 - 2. Depth: As indicated on Drawings.
- G. Resilient Furring Channels: 1/2-inch- deep, steel sheet members designed to reduce sound transmission.
 - 1. Configuration: Asymmetrical or hat shaped.
- H. Cold-Rolled Furring Channels: 0.0538-inch bare-steel thickness, with minimum 1/2-inch-wide flanges.

1. Depth: 3/4 inch.
 2. Furring Brackets: Adjustable, corrugated-edge type of steel sheet with minimum bare-steel thickness of 0.0312 inch.
 3. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.0625-inch diameter wire, or double strand of 0.0475-inch- diameter wire.
- I. Z-Shaped Furring: With slotted or nonslotted web, face flange of 1-1/4 inches, wall attachment flange of 7/8 inch, minimum bare-metal thickness of 0.0179 inch, and depth required to fit insulation thickness indicated.

2.3 INTERIOR GYPSUM BOARD

- A. General Requirements
1. General Material/Product Requirements: Provide the maximum amount of recycled material possible and produced within 500 miles of the site.
 2. Paper facers are 100% recycled paper.
 3. Provide 100% synthetic gypsum
- B. General: Complying with ASTM C 36/C 36M or ASTM C 1396/C 1396M, as applicable to type of gypsum board indicated and whichever is more stringent.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. American Gypsum Co.
 - b. BPB America Inc.
 - c. G-P Gypsum.
 - d. Lafarge North America Inc.
 - e. National Gypsum Company.
 - f. PABCO Gypsum.
 - g. Temple.
 - h. USG Corporation.
- C. Regular Type:
1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- D. Type X:
1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- E. Ceiling Type: Manufactured to have more sag resistance than regular-type gypsum board.
1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- F. Moisture and Mold Resistant Gypsum Board: comply with ASTM D3273. Having paper or glass mat face. Provide Type X where required to achieve indicated fire-resistance ratings and where shown.
1. Core: 5/8 inch, Type X.
 2. Long Edges: Tapered.
 3. Accessory Materials: Provide tape and tape bedding materials recommended by board manufacturer.

2.4 TILE BACKING PANELS

- A. Water-Resistant Gypsum Backing Board: ASTM C 630/C 630M or ASTM C 1396/C 1396M.
1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering

products that may be incorporated into the Work include, but are not limited to, the following:

- a. American Gypsum Co.
 - b. BPB America Inc.
 - c. G-P Gypsum.
 - d. Lafarge North America Inc.
 - e. National Gypsum Company.
 - f. PABCO Gypsum.
 - g. Temple.
 - h. USG Corporation.
2. Core: 5/8 inch, Type X or Type C as required by fire-resistance-rated assembly indicated on Drawings.
 3. Tapered-Edge Profile: Where water-resistant type is indicated to extend beyond the application of wall tile and receive a painted finish, provides standard taper long-edge profile.
- B. Cementitious Backer Units: ANSI A118.9.

Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

- a. Custom Building Products; Wonderboard.
 - b. FinPan, Inc.; Util-A-Crete Concrete Backer Board.
 - c. USG Corporation; DUROCK Cement Board.
2. Thickness: 1/2 inch.

2.5 TRIM ACCESSORIES

- A. Interior Trim: ASTM C 1047.
1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. Bullnose bead.
 - c. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - d. L-Bead: L-shaped; exposed long flange receives joint compound.
 - e. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - f. Expansion (control) joint.
- B. Reveal Picture Hanger: Reveal channel with exposed long flanges to receive joint compound including picture hanger inserts similar to Fry Reglet DHMR Reveal Picture Hanger.
- C. Interior Trim: Paper-faced metal for taping on except where specifically identified otherwise on drawings.
- D. Exterior Trim: Provide zinc-alloy units, except as otherwise indicated.
- E. Provide special accessories as indicated on the drawings.

2.6 JOINT TREATMENT MATERIALS

- A. General: Provide joint treatment materials and systems complying with ASTM C 475/C 475M and the recommendations of both the manufacturer of the board and joint treatment materials for reach application.
1. Provide exterior chemical-hardening type, which is moisture-resistant and recommended by the manufacturer for use on exterior gypsum boards.
 2. Provide setting type compound on abuse resistant board or impact board.
- B. Joint Tape:
1. Interior Gypsum Wallboard: Paper.
 2. Exterior Gypsum Soffit Board: Paper.
 3. Glass-Mat Gypsum Sheathing Board: 1 0-by-1 0 glass mesh.
 4. Tile Backing Panels: As recommended by panel manufacturer.

- C. Joint Compound for Interior Gypsum Wallboard: For each coat use formulation that is compatible with other compounds applied on previous or for successive coats.
 - 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 - 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping or drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 - 3. Fill Coat: For second coat, use setting-type sandable or drying type topping compound.
 - 4. Finish Coat: For third coat, use setting-type sandable or drying type topping compound.
- D. Joint Compound for Exterior Applications:
 - 1. Exterior Gypsum Soffit Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - 2. Glass-Mat Gypsum Sheathing Board: As recommended by sheathing board manufacturer.
- E. Joint Compound for Tile Backing Panels:
 - 1. Water-Resistant Gypsum Backing Board: Use setting-type taping compound and setting-type, sandable topping compound.
 - 2. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.
 - 3. Cementitious Backer Units: As recommended by backer unit manufacturer.

2.7 MISCELLANEOUS MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written recommendations.
- B. Laminating Compound: Special joint compound recommended for laminating gypsum boards for use on double layer walls.
- C. Spot Grout: ASTM C 475, setting-type joint compound of type recommended for spot grouting hollow metal doorframes.
- D. Firestopping Box Pad: Fire Rated Putty Pads by 3M.
- E. Outlet Box Pads: Polybutene -Butyl tape:
 - 1. Elixir by Creative Resources Services
 - 2. Lowry's Outlet Box Pad by Harry Lowry and Associates, Inc.
- F. Screws: ASTM C 1002, unless otherwise indicated.
 - 1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
 - 2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.
- G. Sound Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.
 - 1. Fire-Resistance-Rated Assemblies: Comply with mineral-fiber requirements of assembly.
- H. Isolation Strip at Exterior Walls: Provide one of the following:
 - 1. Asphalt-Saturated Organic Felt: ASTM D 226, Type I (No. 15 asphalt felt), non-perforated.
 - 2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance.
 - 1. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.
 - 1. Furnish concrete inserts and other devices indicated to other trades for installation in advance of time needed for coordination and construction.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.
- D. Coordination with Sprayed Fire-Resistive Materials:
 - 1. Before sprayed fire-resistive materials are applied, attach offset anchor plates or ceiling runners (tracks) to surfaces indicated to receive sprayed fire-resistive materials. Where offset anchor plates are required, provide continuous plates fastened to building structure not more than 24 inches o.c.
 - 2. After sprayed fire-resistive materials are applied, remove them only to extent necessary for installation of non-load-bearing steel framing. Do not reduce thickness of fire-resistive materials below that required for fire-resistance ratings indicated. Protect adjacent fire-resistive materials from damage.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C 754, except comply with framing sizes and spacing indicated.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.
- B. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- C. Install bracing at terminations in assemblies.
- D. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING SUSPENSION SYSTEMS

- A. Install suspension system components in sizes and spacing indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling

plenum that are not part of supporting structural or suspension system.

- a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 2. Where width of ducts and other construction within ceiling plenum produces hanger spacing that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within [performance limits established by referenced installation standards] <Insert deflection limit>.
 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 4. Flat Hangers: Secure to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices and fasteners that are secure and appropriate for structure and hanger, and in a manner that will not cause hangers to deteriorate or otherwise fail.
 5. Do not attach hangers to steel roof deck.
 6. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
 7. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
 8. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
- E. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- F. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- G. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.5 INSTALLING SUSPENSION SYSTEMS GENERAL

- A. General: Comply with ASTM C 754 and C840 and as further specified.
- B. Install suspension system components in sizes and spacing indicated on Drawings, but not less than those required by referenced installation standards for assembly types and other assembly components indicated.
- C. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

3.6 INSTALLATION OF METAL SUPPORT SYSTEMS

- A. Support Suspension Systems: Suspend hangers from building structure as follows:
 1. Furnish and install hanger devices in coordination with other work.
 2. Secure hanger wires to structural support by wire-tying directly to structure where possible; otherwise, tie to inserts, clips or other anchorage devices or fasteners. Wire-tie hanger wires to main runners.
 3. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or ceiling suspension system.
 - a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
 4. Where width of ducts and other construction within ceiling plenum produces hanger

spacing that interfere with the location of hangers required to support standard suspension system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.

- a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
5. Space carrying channels 4'0" o.c. and space hangers 4'-0" along runners, except as otherwise shown.
6. Level carrying channels to a tolerance of 1/4" in 12'-0", measured both lengthwise on each runner and transversely between parallel runners.
7. Wire-tie or clip furring channels to carrying channels runners and to other structural supports.
8. Space furring channels 16" o.c., unless otherwise indicated on the partition schedule.
9. Install auxiliary framing at termination of drywall work, and at openings for light fixtures and similar work, as required for support of both the drywall construction and other work indicated for support thereon.
10. For exterior soffits ceiling, provide cross bracing and additional framing required to resist wind uplift as indicated on the drawings.
11. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
12. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
13. Do not connect or suspend steel framing from ducts, pipes, or conduit.
14. Fire-Resistance-Rated Assemblies: Wire tie furring channels to supports.
15. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
16. Grid suspension systems are suitable for use with gypsum board. They might not be acceptable for gypsum veneer plaster; consult gypsum veneer plaster and grid suspension system manufacturers before specifying them.
17. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
18. Example tolerance below is based on ASTM C 636 for acoustical ceilings.
19. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

3.7 INSTALLING FRAMED ASSEMBLIES

- A. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.
- B. Install studs so flanges within framing system point in same direction.
 1. Space studs as follows:
 - a. Single-Layer Application: 16 inches o.c., unless otherwise indicated.
 - b. Multilayer Application: 16 inches o.c., unless otherwise indicated.
 - c. Tile backing panels: 16 inches o.c., unless otherwise indicated.
- C. Install tracks (runners) at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings, except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts penetrating partitions above ceiling.
 1. Slip-Type Head Joints: When using USG Gypsum board, isolate stud system from transfer of structural loading to system, both horizontally and vertically. Provide slip or cushioned type joints to attain lateral support and avoid axial loading. Cut studs 3/4" short of full height. Do not secure studs to top of runner. Do not secure gypsum board to top runner. Reference **UL U 465 4A** or **4B**. For use on fire rated partition.
 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install runner track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb, unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead

structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings, unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
 4. Fire-Resistance-Rated Partitions: Install framing to comply with fire-resistance rated assembly indicated and support closures and to make partitions continuous from floor to underside of solid structure.
 - a. Firestop Track: Where indicated, install to maintain continuity of fire-resistance-rated assembly indicated.
 5. Install supplementary framing, solid blocking and bracing to support fixtures, equipment, services, heavy trim, furnishings, woodwork, accessories and similar work.
 6. Install runner tracks where gypsum board stud system abuts other work.
 7. Terminate partition stud system at underside of construction above, except where indicated. Provide bracing to structure above in long runs and elsewhere where required but not less than 16 foot centers.
 8. Fasten studs only at ends of floor and ceiling runner tracks by installing a screw into both flanges at each end.
 9. Install horizontal stiffeners in stud system faced on one side only; space 4'-0" o.c. vertically; wire-tie at each intersection.
- D. Metal Furring:
1. Space furring members 16" o.c. vertically, except as indicated closer.
 2. Install extra furring members and angle runners at terminations of drywall work, and at openings and where required for support of other work occurring in the drywall work.
 3. Attachment:
 - a. Screw to metal framing.
 - b. Attach to concrete or masonry with stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
- E. Z-Furring Members:
1. Erect insulation (specified in Division 07 Section "Thermal Insulation") vertically and hold in place with Z-furring members spaced 24 inches o.c.
 2. Except at exterior corners, securely attach narrow flanges of furring members to wall with concrete stub nails, screws designed for masonry attachment, or powder-driven fasteners spaced 24 inches o.c.
 3. At exterior corners, attach wide flange of furring members to wall with short flange extending beyond corner; on adjacent wall surface, screw-attach short flange of furring channel to web of attached channel. At interior corners, space second member no more than 12 inches from corner and cut insulation to fit.
- F. Paragraph below is based on recommendation in GA-216 for wood framing and ASTM C 840 for metal framing.
- G. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.8 INSTALLATION OF GYPSUM BOARD

- A. Preparations and Coordination:
1. Prior to the start of installation of gypsum board, meet at the Project Site with the installers of related work including work requiring openings, chases, frames, access panels, support and similar integrated requirements (including mechanical and electrical work). Review areas of potential interference and conflicts, and coordinate layout and sequencing requirements for proper integration of the work.
 2. Do not proceed with gypsum board installation until blocking, framing, bracing and other supports for subsequently applied work have been installed.
 3. Install sound attenuation blankets where indicated and where required to achieve fire-resistance ratings, before installation of gypsum board unless blankets can be readily installed after board has been installed.

B. Basic Installation Requirements:

1. Comply with ASTM C 840.
2. Comply with requirements for fire-resistance ratings.
3. Locate exposed end-butt joints as far from center of walls and ceilings as possible, and stagger not less than 1'-0" in alternate courses of board.
4. Install exposed gypsum board with face side out. Do not install imperfect, damaged or damp boards. Butt boards together for a light contact at edges and ends with not more than 1/16" open space between boards. Do not force into place.
5. Apply board vertically, one-piece full height. Locate edge end joints over supports. Position boards so that both tapered edge joints abut, and mill-cut or field-cut end joints abut. Do not place tapered edges against cut edges or ends. Stagger vertical joints over different studs On opposite sides of partitions.
6. Attach gypsum board to framing and blocking as required for additional support at openings and cutouts.
7. After scoring face paper and breaking core, cut back paper; do not tear or snap. Bevel panel ends 1/8" at 45° angle with sharp knife.
8. Do not locate joints within 8" of corners or openings. Where necessary, place a single vertical joint over the center of wide openings.
9. Install gypsum board on both faces of steel stud partition framing above ceilings to underside of deck unless noted otherwise.
10. Provide perimeter isolation where partitions abut structural elements. Allow not less than 1/4", not more than 3/8" gap between gypsum and structure. Finish edges of face layer with Hype (semi-finishing) casing bead. Seal space between casing bead and structure with continuous acoustical sealant bead. Attach gypsum board to studs not less than 1/2" below bottom edge of ceiling track flanges and to first stud adjacent to vertical tracks. Do not attach board directly to tracks.
11. At partitions, provide continuous beads of acoustical sealant at juncture or both faces of runners of plates with floor and ceiling construction, and wherever work abuts dissimilar materials. Seal prior to installation of gypsum boards.
12. At ceilings, provide continuous beads of acoustical sealants wherever work abuts dissimilar materials.
13. Wrap all electrical and communication boxes and all other back-boxes to completely close up all openings and joints with firestopping pads in rated construction and with outlet box pads tape in non-rated construction.
14. At openings and cutouts, fill open spaces between edges of gypsum board and fixtures, cabinets, ducts and other flush or penetrating items, with continuous bead of acoustical sealant.
15. Install sound attenuation blankets, in partitions where indicated. Completely blanket space between studs to full height of partitions. Fit carefully behind electrical outlets and other work, which penetrates partitions. Attach to back face of gypsum board in accordance with manufacturer's instructions.
16. Unless otherwise specifically shown, continue all sound attenuation blankets and gypsum board above ceiling to provide complete closure. Fit tight to abutting and penetrating construction and seal.
17. Fill joint between tracks and abutting construction with safing insulation.
18. Space fasteners in gypsum boards in accordance with referenced gypsum board application and finishing standard and manufacturer's recommendations and requirements of fire rating design (if any), but not less than 12" o.c. except 8" o.c. for abuse resistant board (if any) and the backer board.

C. Control Joints: Provide control joints in accordance with ASTM C840, if not indicated place joints at maximum 30 foot spacing located at door jamb or window jamb studs where practical. Provide on both sides of partitions. Install in accordance with ASTM C840 and manufacturer's recommendations.

D. Grouting Frames:

1. Where grouting is indicated, fully grout frames with stiff gypsum grout to depth of clip before installing jamb stud.
2. Where grouting is not indicated, spot grout by applying gypsum grout or joint compound just before inserting gypsum board sheet.

- E. Ceilings:
1. Apply exposed gypsum board on ceilings, before applications on walls and partitions, to the greatest extent possible.
 2. Apply indirection, which will minimize end joints.
 3. Fasten with screws.
 4. Where gypsum board ceiling is shown as base for adhesively-applied acoustical ceiling tile, install gypsum backing board, with end joints staggered over supports.
- F. Install interior gypsum board in the following locations:
1. Regular Type: Vertical surfaces, unless otherwise indicated.
 2. Type X: Where required for fire-resistance-rated assembly.
 3. Type C: Where required for specific fire-resistance-rated assembly indicated.
 4. Ceiling Type: Ceiling surfaces.
 5. Abuse-Resistant Type: On all exposed surfaces in the public spaces.
 6. Moisture- and Mold-Resistant Type: On walls of the in wet areas not receiving a tile finish and in following areas: including locker rooms, toilet rooms, wet wall of Break Rooms, Vestibules, Recycling Collection Spaces.
- G. Single-Layer Walls and Partitions:
1. Apply sheets vertically and provide full height sheet lengths.
 2. Locate edge joints over supports; stagger joints over supports on opposite sides of partitions.
 3. Fasten with screws.
 4. Except where otherwise specified or indicated, where drywall is base for thin-set ceramic tile and similar rigid applied wall finishes, install water-resistant gypsum backing board to comply with ASTM C 840 and recommendations of gypsum board manufacturer.
- H. Double-Layer Walls and Partitions:
1. Install base layer of gypsum backing board (or exposed gypsum board, at Installer's option), and face layer of exposed gypsum board. Apply both layers vertically, with joints of base layer over supports and joints of face layer offset at least 10" with base layer joints. Provide full height sheet lengths.
 2. Fasten base layer with screws.
 3. Fasten face layer with screws through base layer and into supports or laminating adhesive. Brace to temporarily fasten face layer until adhesive has dried.
 4. Supplement adhesive with permanent screw fastening of face layer through base layer and into supports.
- I. Cementitious Backer Partitions: Install and treat joint to comply with manufactures recommendations.

3.9 INSTALLATION OF TRIM ACCESSORIES

- A. Coordinate the installation of trim accessories with the installation of gypsum board. Use the same fasteners to anchor trim accessory flanges as required to fasten gypsum board to the supports.
- B. Install paper tape-in type metal corner beads at external corners of drywall work.
- C. Install paper tape-in type metal edge trim wherever edge of gypsum board would otherwise be exposed or semi-exposed.
1. Install L-type trim-beads for joint compound where edge is shown to be tightly fitted to abutting work without reveal or sealant pocket.
 2. Install U-type trim-beads for joint compound where edge is not tightly fitted to abutting work exposed, revealed, sealant pocket, gasket, or other separation, except as otherwise indicated.
- D. Install H-Molding in exterior gypsum drywall work where control joints are indicated, except do not exceed spacing recommended by gypsum board manufacturer.

3.10 FINISHING

- A. Comply with manufacturer's instructions for the mixing, handling and application of materials. Machine or hand application is Installer's option. Apply treatment at joints both directions, flanges of trim accessories, penetrations of the gypsum board (electrical boxes, piping and similar work), fastener heads, surface defects and elsewhere as indicated; and apply in the manner which will result in each of these being concealed when applied decoration has been completed.
- B. Where open joints of more than 1/16" occur, including edges of boards with rounded or beveled corners, prefill joint with special chemical-hardening-type bedding compound, prior to bedding of joint tape.
- C. Comply with the requirements for a level 4 finish except where otherwise specified. Embed tape in joint compound in all joints and interior angles and apply two (2) additional separate coats of joint compound over all flat joints and one separate coat of joint compound overall interior angles. Cover fastener heads and accessories with three separate coats of joint compound. Provide compound free of tool marks and ridges and the Gypsum board surface free of joint compound. Smooth compound by wiping with a damp sponge.
- D. Where level 5 finishes where indicated on drawings, after completing level 4 finishing, trowel-apply a thin, skim coat of joint compound to the entire surface filling in imperfections in the joint finishing, smoothing the paper texture providing a uniform surface. Immediately shear off excess compound leaving a very thin generally translucent skim coating of compound completely covering the paper, smooth and free of tool marks and ridges.
- E. Where water resistant gypsum board is indicated as a base for ceramic tile and similar rigid applied finishes, finish joints with tape and setting. Tape joint compound to comply with gypsum board manufacturer's recommendations.
- F. Where gypsum board is indicated as a base for the adhesive-application of wall coverings, comply with manufacturer's instructions for applying joint compound and joint tape in minimum thicknesses over end-joints and cut-joints, so as to avoid a build-up of tape and compound which would telegraph through. Select topping coat for maximum strength and bond with gypsum board.
- G. Partial Finishing: Omit third coat and finishing on concealed drywall construction that is indicated for drywall finishing or which requires finishing to achieve fire-resistance rating, sound rating or to act as air or smoke barrier.
- H. Exterior Finishing: Install drywall finishing with exterior chemical-hardening type compound for all three coats, and for prefill if required. Use type of joint tape recommended by manufacturer.

3.11 WASTE MANAGEMENT

- A. Refer to Construction Waste Management and Disposal section 01 74 19.
- B. Separate and recycle off cuts and waste materials in accordance to Section 01 74 19 and to the maximum extent economically feasible.
- C. Separate clean waste gypsum products from contaminants for recycling. Do not include wood, plastic, metal, asphalt impregnated gypsum board, or any gypsum board coated with glass fiber, vinyl, decorative paper, or other finish. Place in designated area and protect from moisture and contamination.
- D. Separate metal waste in accordance to Section 01 74 19 and place in designated areas for recycling or reuse.
- E. Place materials defined as hazardous or toxic waste in designated containers.
- F. Return solvent and oil soaked rags for contaminant recovery and laundering or for proper disposal.
- G. Use trigger operated spray nozzles for water hoses.

- H. Use the least toxic sealants, adhesives, sealers, and finishes necessary to comply with the requirements of this section.
- I. Set aside and protect the surplus and uncontaminated waste finish materials. Deliver to or arrange collection by employees, individuals, or organizations for verifiable re-use or re-manufacturing.
- J. Close and seal tightly all partly used sealant and adhesive containers and store protected in well ventilated fire-safe area at moderate temperature.
- K. Place used sealant and adhesive tubes and containers in areas designated for hazardous waste.
- L. Dispose of scraps less than 2 sq. ft. in area, or less than 8" in width according to Section 01 7419.

END OF SECTION

SECTION 09 30 00

TILING

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Ceramic tile.
 - 2. Stone thresholds

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples:
 - 1. Each type and composition of tile and for each color and finish required.
 - 2. Stone thresholds in 6 inch lengths.

1.3 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match and are from same production runs as products installed and that are packaged with protective covering and identified with labels describing contents.
 - 1. Tile and Trim Units: Furnish quantity of full-size units equal to 3 percent of amount installed for each type, composition, color, pattern, and size indicated.

PART 2 - PRODUCTS

2.1 TILE PRODUCTS

- A. ANSI Ceramic Tile Standard: Provide Standard grade tile that complies with ANSI A137.1 for types, compositions, and other characteristics indicated.
- B. FloorScore Compliance: Tile for floors shall comply with requirements of FloorScore Standard.
- C. Low-Emitting Materials: Tile flooring systems shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- D. Tile Type CT-1: Ceramic mosaic wall tile.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide: Keystones by Daltile, Division of Dal-Tile International Inc. or comparable product by one of the following:
 - a. American Olean; Division of Dal-Tile International Inc.
 - 2. Composition: Vitreous or impervious natural clay or porcelain.
 - 3. Module Size: 2 by 2 inch
 - 4. Thickness: 1/4 inch.
 - 5. Face: Plain with cushion edges.
 - 6. Surface: Smooth, without abrasive admixture.
 - 7. Tile Color and Pattern: Selected by Owner from Manufacturer's full range of colors
 - 8. Grout Color: Selected by Owner from Manufacturer's full range of colors.
- E. Tile Type CT-2: Porcelain Floor Tile
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Veranda Solids by American Olean; Division of Dal-Tile International Inc. or comparable product by one of the following:

- a. Daltile; Division of Dal-Tile International Inc.
 - 2. Composition: Vitreous or impervious natural clay or porcelain.
 - 3. Module Size: 13 by 13 inch
 - 4. Thickness: 3/8 inch.
 - 5. Face: Plain with cushion edges.
 - 6. Surface: Smooth, without abrasive admixture.
 - 7. Tile Color and Pattern: Selected by Owner from Manufacturer's full range of colors
 - 8. Grout Color: Selected by Owner from Manufacturer's full range of colors.
- F. Tile Type B-1: Ceramic wall tile base.
- 1. Basis-of-Design Product: Subject to compliance with requirements, provide Built Up Base, Unglazed Mosaics by American Olean; Division of Dal-Tile International Inc. or comparable product by one of the following:
 - a. Daltile; Division of Dal-Tile International Inc.
 - 2. Composition: Vitreous or impervious natural clay or porcelain.
 - 3. Module Size: 2 by 2 inch
 - 4. Thickness: 5/16 inch.
 - 5. Face: Pattern of design indicated, with Manufacturer's standard edges.
 - 6. Finish: Manufacturer's standard
 - 7. Tile Color and Pattern: Selected by Owner from Manufacturer's full range of colors
 - 8. Grout Color: Selected by Owner from Manufacturer's full range of colors.

2.2 THRESHOLDS

- A. General: Fabricate to sizes and profiles indicated or required to provide transition between adjacent floor finishes.
 - 1. Bevel edges at 1:2 slope, with lower edge of bevel aligned with or up to ¼ inch above adjacent floor surface. Finish bevel to match top surface of threshold. Limit height of threshold to ½ inch or less above adjacent floor surface.
- B. Marble Thresholds: ASTM C 503, with a minimum abrasion resistance of 10 or 12 per ASTM C 1353 or ASTM C 241 and with honed finish.
 - 1. Description: uniformed, fine to medium grained white stone with gray veining.

2.3 TILE BACKING PANELS

- A. Cementitious Backer Units: ANSI A118.9 or ASTM C 1325.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. C-Cure; C-Cure Board 990.
 - b. Custom Building Products; Wonderboard.
 - c. FinPan, Inc.; Util-A-Crete Concrete Backer Board
 - d. USG Corporation; DUROCK Cement Board.
 - 2. Thickness: 5/8 inch (15.9 mm).

2.4 WATERPROOF MEMBRANE

- A. Latex-Portland Cement: Flexible mortar consisting of cement-based mix and latex additive.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Boiardi Products, a QEP Company; Elastiment 323 Cement Based Waterproofing, Anti-Fracture/Crack Suppression Membrane.
 - b. C-Cure; UltraCure971.
 - c. MAPEI Corporation; Mapelastic (PRP 315).
 - d. TEC, a subsidiary of H.B. Fuller Company; Triple Flex Waterproofing, Crack Isolation Membrane and Mortar.

2.5 SETTING MATERIALS

- A. Latex-Portland Cement Mortar (Thin Set): ANSI A118.4.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Bostik, Inc.
 - b. Custom Building products.
 - c. Laticrete International, Inc.
 - d. MAPEI Corporation.
 - e. TEC, a subsidiary of H.B. Fuller Company
 - 2. Prepackaged, dry-mortar mix to which only water must be added.
 - 3. Prepackaged, dry-mortar mix combined with liquid latex additive.
 - 4. For wall applications, provide non-sagging mortar.

2.6 GROUT MATERIALS

- A. Standard Cement Grout: ANSI A118.6.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bostik, Inc.
 - b. Custom Building Products.
 - c. Laticrete International, Inc.
 - d. MAPEI Corporation
 - e. TEC; a subsidiary of H. B. Fuller Company.
- B. Polymer-Modified Tile Grout: ANSI A118.7.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Bostik, Inc.
 - b. Custom Building Products.
 - c. Laticrete International, Inc.
 - d. MAPEI Corporation
 - e. TEC; a subsidiary of H. B. Fuller Company.
 - 2. Polymer Type: Acrylic resin or styrene-butadiene rubber in Liquid-latex form for addition to prepackaged dry-grout mix.

2.7 MISCELLANEOUS MATERIALS

- A. Trowelable Underlayments and Patching Compounds: Latex-modified, portland cement-based formulation provided or approved by manufacturer of tile-setting materials for installations indicated.
- B. Grout Sealer: Manufacturer's standard (**silicone**) product for sealing grout joints and that does not change color or appearance of grout.
 - 1. Products: Subject to compliance with requirements, provide one of the following:
 - a. Bostik, Inc.; CeramaSeal Siloxane 220.
 - b. C-Cure; Penetrating Sealer 978.
 - c. Custom Building Products; Surfaceguard Grout Sealer.
 - d. MAPEI Corporation; KER 004, Keraseal Penetrating Sealer for Unglazed Grout and Tile.
 - e. TEC; a subsidiary of H. B. Fuller Company; TA-256 Penetrating Silicone or TA-257 Silicone Grout Sealer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions where tile will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of installed tile.

1. Verify that substrates for setting tile are firm, dry, clean, free of coatings that are incompatible with tile setting materials including curing compounds and other substances that contain soap, wax, oil, or silicone; and comply with flatness tolerances required by ANSI A108.01 for installations indicated.

3.2 PREPARATION

- A. Fill cracks, holes, and depressions in concrete substrates for tile floors installed with adhesives or thin-set mortar with trowelable leveling and patching compound specifically recommended by tile-setting material manufacturer.
- B. Where indicated, prepare substrates to receive waterproofing by applying a reinforced mortar bed that complies with ANSI A 108.1 A and is sloped 1/4 inch per foot (1 :50) toward drains.
- C. Blending: For tile exhibiting color variations, use factory blended tile or blend tiles at Project site before installing.
- D. Field-Applied Temporary Protective Coating: If indicated under tile type or needed to prevent grout from staining or adhering to exposed tile surfaces, precoat them with continuous film of temporary protective coating, taking care not to coat unexposed tile surfaces.

3.3 INSTALLATION

- A. Comply with TCA's "Handbook for Ceramic Tile Installation" for TCA installation methods specified in tile installation schedules. Comply with parts of the ANSI A108 Series "Specifications for Installation of Ceramic Tile" that are referenced in TCA installation methods, specified in tile installation schedules, and apply to types of setting and grouting materials used.
 1. For the following installations, follow procedures in the ANSI A108 Series of tile installation standards for providing 95 percent mortar coverage:
 - a. Exterior tile floors.
 - b. Tile floors in wet areas.
 - c. Tile swimming pool decks.
 - d. Tile floors in laundries.
 - e. Tile floors composed of tiles 8 by 8 inches (200 by 200 mm) or larger.
 - f. Tile floors composed of rib-backed tiles.

B. Extend tile work into recesses and under or behind equipment and fixtures to form complete covering without interruptions unless otherwise indicated. Terminate work neatly at obstructions, edges, and corners without disrupting pattern or joint alignments.

- C. Accurately form intersections and returns. Perform cutting and drilling of tile without marring visible surfaces. Carefully grind cut edges of tile abutting trim, finish, or built-in items for straight aligned joints. Fit tile closely to electrical outlets, piping, fixtures, and other penetrations so plates, collars, or covers overlap tile.
- D. Provide manufacturer's standard trim shapes where necessary to eliminate exposed tile edges.
- E. Jointing Pattern: lay tile in grid pattern unless otherwise indicated. layout tile work and center tile fields in both directions in each space or on each wall area. layout tile work to minimize the use of pieces that are less than half of a tile. Provide uniform joint widths unless otherwise indicated.
- F. Joint Widths: Unless otherwise indicated, install tile with the following joint widths:
 1. Ceramic Mosaic Tile: 1/16 inch (1.6 mm).
 2. Decorative Thin Wall Tile: 1/16 inch (1.6 mm).
- G. Expansion Joints: Provide expansion joints and other sealant-filled joints, including control, contraction, and isolation joints, where indicated. Form joints during installation of setting materials, mortar beds, and tile. Do not saw-cut joints after installing tiles.
 1. Where joints occur in concrete substrates, locate joints in tile surfaces directly above them.
 2. Prepare joints and apply sealants to comply with requirements in Section 079200 "Joint Sealants."
- H. Stone Thresholds: Install stone thresholds in same type of setting bed as adjacent floor unless otherwise indicated.

1. At locations where mortar bed (thickset) would otherwise be exposed above adjacent floor finishes, set thresholds in latex-portland cement mortar (thinset).
- I. Grout Sealer: Apply grout sealer to grout joints according to grout-sealer manufacturer's written instructions. As soon as grout sealer has penetrated grout joints, remove excess sealer and sealer from tile faces by wiping with soft cloth.
- J. Install cementitious backer units and treat joints according to ANSI A108.11. and manufacturer's written instructions for type of application indicated. Use latex-portland cement mortar for bonding material unless otherwise directed in manufacturer's written instructions.
- K. Install waterproofing to comply with ANSI A108.13 and manufacturer's written instructions to produce waterproof membrane of uniform thickness and bonded securely to substrate.
- L. Install crack isolation membrane to comply with ANSI A108.17 and manufacturer's written instructions to produce membrane of uniform thickness and bonded securely to substrate.

3.4 INTERIOR TILE INSTALLATION SCHEDULE

- A. Interior Wall Installations, Metal Stud and Cementitious Backer Unit
 1. Tile Installation W202: Thin-set mortar; TCA W202.
 - a. Tile Type: CT-1
 - b. Thin-Set Mortar: latex- portland cement mortar.
 - c. Grout Standard unsanded cement grout.

END OF SECTION

**SECTION 09650
RESILIENT FLOORING**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. The work of this Section includes:
1. Rubber tile flooring
 2. Rubber sheet flooring
 3. Rubber wall base
 4. Rubber stairtreads and accessories
 5. Responsibilities, preparation/installation
- B. Related Sections: Other specification sections which directly relate to the work of this section include, but are not limited to, the following:
1. Section 03300 - Cast-In-Place Concrete; concrete substrate; slab surface tolerances; vapor retarder for applications on or below grade; 83/90 degree riser and tread edge angle for stair tread and nosings
 2. Section 06100 - Rough Carpentry; plywood substrate; surface tolerances
 3. Section 10270 - Access Flooring; resilient floor covering for access panels
- C. References (Industry Standards):
1. American Association of Textile Chemists and Colorists
 - a. AATCC 134 Electrostatic Propensity of Carpets
 2. American National Standards Institute
 - a. ANSI ESD S97.2 Floor Materials and Footwear – Voltage Measurement on a Person
 3. American Society for Testing and Materials
 - a. ASTM C423 Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
 - b. ASTM C518 Standard Test Method for Steady State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
 - c. ASTM D412 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
 - d. ASTM D2047 Standard Test Method for Static Coefficient of Friction of Polish-Coated Floor Surfaces as Measured by the James Machine
 - e. ASTM D2240 Standard Test Method for Rubber Property – Durometer Hardness
 - f. ASTM D3389 Standard Test Method for Coated Fabrics Abrasion Resistance (Rotary Platform, Double Head Abrader)
 - g. ASTM D6499 Standard Test Method for The Immunological Measurement of Antigenic Protein in Natural Rubber and its Products
 - h. ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
 - i. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
 - j. ASTM E648 Standard Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Heat Energy Source
 - k. ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
 - l. ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs
 - m. ASTM E2179 Standard Test Method for Laboratory Measurement of the Effectiveness of Floor Coverings in Reducing Impact Sound Transmission Through Concrete Floors
 - n. ASTM E2180 Standard Test Method for Determining the Activity of Incorporated Antimicrobial Agent(s) in Polymeric Hydrophobic Materials
 - o. ASTM F150 Standard Test Method for Electrical Resistance of Conductive and Static Dissipative Resilient Flooring
 - p. ASTM F155 Method of Test for Temper of Strip and Sheet Metals for Electronic Devices
 - q. ASTM F386 Standard Test Method for Thickness of Resilient Flooring Materials Having Flat Surfaces
 - r. ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

- s. ASTM F925 Standard Test Method for Resistance to Chemicals of Resilient Flooring
- t. ASTM F970 Standard Test Method for Static Load Limit
- u. ASTM F1344 Standard Specification for Rubber Floor Tile
- v. ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring
- w. ASTM F1514 Standard Test Method for Measuring Heat Stability of Resilient Flooring by Color
- x. ASTM F1859 Standard Specification for Rubber Sheet Floor Covering Without Backing
- y. ASTM F1860 Standard Specification for Rubber Sheet Floor Covering With Backing
- z. ASTM F1861 Standard Specification for Resilient Wall Base
- aa. ASTM F2055 Standard Test Method for Size and Squareness of Resilient Floor Tile by Dial Gage Method
- bb. ASTM F2169 Standard Specification for Resilient Stair Treads
- cc. ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using *in situ* Probes
- dd. ASTM F2199 Standard Test Method for Determining Dimensional Stability of Resilient Floor Tile after Exposure to Heat
- ee. ASTM F2420 Standard Test Method for Determining Relative Humidity on the Surface of Concrete Floor Slabs Using Relative Humidity Probe Measurement and Insulated Hood
- ff. ASTM F3010 Standard Practice for Two-Component Resin Based Membrane-Forming Moisture Mitigation Systems for Use Under Resilient Floor Coverings
- gg. ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi
- 4. European Norm
 - a. FTM 101 C 4046 Static Decay
- 5. International Organization for Standardization
 - a. ISO 140 Measurement of sound insulation in buildings and of building elements
- 6. National Fire Protection Association
 - a. NFPA 253 Test Method for Critical Radiant Flux of Floor Covering Systems Using a Radiant Energy Source
 - b. NFPA 258 Test Method for Specific Density of Smoke Generated by Solid Materials

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's Installation Guide and Maintenance Guide for each material proposed for use (available on www.nora.com/us).
- B. Samples: Submit two 6 inch by 6 inch samples, in color specified, for verification.
- C. SDS (Safety Data Sheets) should be submitted for all adhesives used: nora[®] membrane, nora[®] primer, nora[®] patch, nora[®] leveler, nora[®] heat welding rod, nora[®] cold weld, nora[®] liquid wax and cleaning agents. These are available at www.nora.com/us.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Provide resilient flooring manufactured by a firm with a minimum of 10 years' experience with resilient flooring of type's equivalent to those specified. Manufacturers proposed for use, which are not named in this section, shall submit evidence of ability to meet performance requirements specified not less than 10 days prior to bid date.
 - 1. Color Matching: Provide resilient flooring products, including wall base and accessories, from one manufacturer to ensure color matching.
 - 2. Provide subfloor preparation products including, membrane, primer, patch, leveler and adhesive systems from one manufacturer to ensure compatibility.
 - 3. Manufacturer must be capable of providing technical training and technical field service representation.
- B. Installer Qualifications: Installer shall be nora approved for the requirements of the project or INSTALL (International Standards & Training Alliance) resilient certified for the requirements of the project.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials in labeled packages. Store and handle in strict compliance with manufacturer's recommendations. Protect from damage due to weather, excessive temperatures, and construction operations.

- B. Deliver materials sufficiently in advance of installation to condition materials to the required temperature prior to installation.

1.06 PROJECT CONDITIONS

- A. Maintain temperature and humidity at service levels or 68° F (20° C), $\pm 5^\circ$ F (3° C), and 50% RH $\pm 10\%$ in areas to receive resilient flooring. Specified temperature shall be maintained at least 48 hours before, during, and 72 hours after installation.

1.07 WARRANTY

- A. Provide current, detailed manufacturer's warranty for each flooring product as applicable, including limited wear, defect and conductivity.

1.08 EXTRA MATERIALS

- A. Furnish full size units equal to 2 percent of quantity of resilient flooring installed as extra materials. Properly label and package extra materials. Deliver to owners designated storage area.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURER

- A. Nora systems, Inc., 9 Northeastern Blvd., Salem, NH 03079; telephone 800-332-NORA, or 603-894-1021; fax 603-894-6615.
- B. The manufacturer shall have the Quality Management System approved by Lloyd's Register Quality Assurance to the Quality Management System Standard ISO 9001:2000.
- C. The manufacturer shall be validated according to the Eco-Management and Audit System (EMAS).
- D. The manufacturer shall offer a construction waste take back program for the purpose of reducing jobsite waste by taking back their uninstalled waste flooring. Details of the nora program are available on www.nora.com/us.

2.02 RESILIENT TILE FLOORING FOR COMMERCIAL TRAFFIC

- A. Product Name: **noraplan environcare™, Article 2463**
1. ASTM Specification: ASTM F1344 Standard Specification for Rubber Floor Tile, defined as Type I and Grade 1
 2. Limited Wear Warranty: 5 years
 3. Material: nora vulcanized rubber compound 913 with environmentally compatible color pigments that are free of toxic heavy metals like lead, cadmium or mercury
 4. Composition: Homogeneous rubber compound with a random scattered design
 5. Color: 48 standard colors available
 6. Surface: Smooth
 7. Back of Tile: Double-sanded smooth
 8. Tile Size: ~24 inches by 24 inches (610mm by 610mm), ASTM F2055, ± 0.018 (± 0.45 mm) is required and achieved
 9. Squareness: ASTM F2055, ± 0.018 inches (± 0.45 mm) is required and achieved
 10. Thickness: ~0.12 inches (3mm), ASTM F386, ± 0.005 inches (± 0.127 mm) is required and achieved
 11. Dimensional Stability: ASTM F2199, $\leq 0.15\%$ in both directions is required and achieved
 12. Flammability: ASTM E648; NFPA 253; NBSIR 75 950, 1.03 is achieved, ≥ 0.45 watts/sq. cm for Class 1 is required
 13. Smoke Density: ASTM E662; NFPA 258; NBS, 376 (flaming) and 256 (non-flaming) achieved, < 450 is required
 14. CAN/ULC-S102.2: Surface Burning, FSC1 of 125 and SD of 370, achieved
 15. Burn Resistance: Resistant to cigarette and solder burns
 16. Slip Resistance: ASTM D2047 Static coefficient of friction, Neolite dry 0.99, Neolite wet 0.88 achieved, $\geq .5$ is required (not recommended for ramps)
 17. Bacteria Resistance: ASTM E2180 and ASTM G21, resistant to bacteria, fungi, and micro-organism activity
 18. VOC's: This flooring is GREENGUARD Gold Certified for Low VOC Emissions (formerly GREENGUARD Children & Schools), GREENGUARD Certified for Low VOC Emissions (formerly GREENGUARD Indoor Air Quality Certified), Blue Angel Certified and CA 01350 Compliant
 19. Latex Allergies: ASTM D6499, Inhibition Elisa, results are below detection level

20. Sound Absorption: ASTM E2179 Δ IIC 14, ISO 140 Δ L_w 10 dB (compare only Δ values)
21. Sound Generation Level: 67.2 dBA, 68.9 dBC and 20.9 Sones, Independently tested
22. Hardness: ASTM D2240, Shore type "A", 92 achieved, ≥ 85 is required
23. Static Load: ASTM F970, Residual compression of 0.003" with 800 lbs. achieved, ≤ 0.005 " with 250 lbs. is required
24. Rolling Load Limit: ≤ 550 lbs. / sq. inch, with no forklift traffic
25. Abrasion Resistance: ASTM D3389, 1.1 lbs. (500g) load on H-18 wheel with 1000 cycles, 0.003 oz. (0.09g) weight loss achieved, ≤ 0.035 oz. (1.0g) is required
26. Elongation: ASTM D412 Modulus @ 10% is 1299 lbs. per sq. inch achieved, ≥ 300 lbs. per sq. inch is required
27. Oil & Grease Resistant: No
28. Heat Resistance: ASTM F1514, Avg. $\Delta E \leq 8.0$ is required, easily achieved with all batches and regular maintenance
29. Light Resistance: ASTM F1515, Avg. $\Delta E \leq 8.0$, easily achieved with all batches and regular maintenance
30. Static Generation: AATCC 134, < 2000 Volts at 20% RH, achieved
31. Thermal Transmission: ASTM C518, R-value 0.77, achieved
32. Cleaning: Cleaned and maintained effectively using water, nora cleaning pads and a suitable cleaning machine, without the use of any factory and/or field-applied coatings. Also without using any chemicals that may be hazardous or containing any teratogenic, mutagenic or any other ingredients known to be carcinogenic.
33. Shine: Higher shine achieved by buffing without any artificial topical applied coatings
34. Stain Removal: Samples of the product shall be provided for stain removal testing by the owner. Sample size shall be 24 inches by 24 inches, pre-cleaned by manufacture per published recommendations. Samples shall have no coatings, sealers, floor finish or other manually or mechanically applied finish on the surface of the product. Stain testing shall consist of application of common healthcare related disinfectants and chemicals to include, but not limited to, Betadine, Methylene Blue, Silver Nitrate and alcohol based hand sanitizer. Duration of test period shall be no less than one week. Removal of chemicals shall be in accordance with manufacturers published cleaning and maintenance recommendations.
35. Substrate Preparation: nora pro install system products are recommended as required following the nora Installation Guide; this may consist of part, or all, of the following steps depending upon the project specifics:
 Step 1 – nora membrane
 Step 2 – nora primer
 Step 3 – nora leveler
 Step 4 – nora patch
 Step 5 – nora adhesives, the flooring type, usage and substrate conditions will determine the appropriate adhesive. Please contact your nora representative for specific recommendations.

PART 3 – RESPONSIBILITIES

3.01 GENERAL CONTRACTOR RESPONSIBILITIES

- A. A building or flooring area that is water tight and fully enclosed from the elements, including roof, windows or facades and doors, that is ready for the flooring installation is required.
- B. 1. A concrete subfloor that shall conform to the requirements of ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring is required, or as detailed in the nora Installation Guide.
- C. A concrete subfloor that shall be structurally sound, that has finished shrinking, cracking, curling or moving in any way is required.
- D. For all concrete substrates on or below grade, a permanent effective vapor retarder with a low permeance (less than 0.1) and having a minimum thickness of 10 mils or meeting the requirements of the latest edition of ASTM E1745 Standard Specification for Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs, shall be placed directly underneath the concrete above the granular fill, and shall be installed as per the manufacturer's written instructions. A letter shall be provided to the end user confirming the correct products have been used and that it is fully warranted, alternatively nora membrane shall be used as described in 3.01 H.
- E. A clean non-burnished concrete surface free from any paint, wax, oil, grease, and film forming curing compounds, silicate penetrating curing compounds, sealing, hardening or parting compounds is required. The surface should not have any alkaline salts, laitance, mold, mildew, residual adhesive, chemical

adhesive removers or anything that may prevent the appropriate nora pro install products bonding to it. If not then the general contractor should provide the mechanical means to remove them. This could be dustless diamond grinding, bead-blast or similar with a suitable vacuum attachment.

Warning:

Do not sand, dry sweep, dry scrape, drill, saw, bead-blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphalt "cutback" adhesive, or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.

Various local, state and federal government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable local, state and federal regulations.

The RFCI (Resilient Floor Covering Institute) "Recommended Work Practices for Removal of Resilient Floor Coverings" are a defined set of instructions addressed to the task of removing all resilient floor-covering structures including adhesive and adhesive residues. For more information contact RFCI directly at www.rfci.com or 706-882-3833.

- F. Valid tests and acceptable test results shall be provided to the end user and flooring contractor, including documenting with photographs, the location of all tests, recorded % relative humidity levels and temperature of both the concrete subfloor and ambient conditions prior to flooring installation. Testing shall be performed at the correct, controlled ambient service temperature and humidity following the protocol of ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes, using a Wagner Rapid RH probes only. It is recommended that moisture testing be performed by a certified International Concrete Repair Institute (ICRI) Tier 2 Testing Technician – Grade 1. When tested at the correct ambient temperature and humidity the maximum allowable shall be 85%RH for the correct nora[®] 385, 485, 585 or 685 adhesive or 75%RH for nora[®] dryfix or nora[®] stepfix systems.
- G. If it is not possible to drill into the concrete for any reason as detailed in ASTM F2170 Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes, please contact the nora Technical Department for other recommendations.
- H. Only if it is not possible to provide a concrete substrate with acceptable moisture levels, or that (when appropriate) have a confirmed effective vapor retarder, then nora membrane should be used as described in 3.02 G. Alternative membrane used shall conform to the requirements of ASTM F3010. Please note that all additional costs associated with this concrete condition are the responsibility of the general contractor / end user, including any additional requirements for concrete preparation, priming, leveler, patching or labor.
- I. A secure storage area that is maintained permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or 68°F ± 5° F and 50% ± 10% relative humidity, for at least 48 hours prior to and during the application of the flooring, so the flooring contractor can acclimate the flooring materials is required.
- J. An installation area that is weather tight and maintained either permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or 68°F ± 5° F and 50% ± 10% relative humidity, for at least 48 hours prior to, during and 72 hours after the application of the flooring is required.
- K. Areas with direct prolonged exposure to sunlight shall be protected with the use of Low E glass doors and windows or facades.
- L. Areas of the flooring that are subject to direct sunlight through doors or windows shall have them covered using blinds, curtains, cardboard or similar for the time of the installation and 72 hours after the installation to allow the adhesive to cure. Note: These areas shall be installed using wet adhesives only.
- M. Prevent all traffic for a minimum of 12 hours and rolling loads for 72 hours to allow the adhesive to cure. If required, after 12 hours protect the flooring from damage during construction operations using Masonite, plywood or a similar product, ensuring first that the flooring surface is free of all debris. Lay panels so that the edges form a butt joint and tape the joint to prevent both movement and debris entrapment underneath them. Inspect immediately before covering and after removal for final acceptance.
- N. Have the flooring cleaned no sooner than 72 hours (unless given written permission from the nora Technical Department) after the installation using either the nora pro clean[®] system or a standard method as detailed in the appropriate nora[®] Maintenance Guide.

3.02 FLOORING CONTRACTOR RESPONSIBILITIES

- A. Provide trained installers that have at least one of the following:
 - Approved by nora systems, Inc. for all of the requirements of the project.
 - INSTALL (International Standards & Training Alliance) certified for the requirements of the project.
- B. An effective installation manager, to manage the project, installers, and ensure that all of the required procedures are followed, documented and that the nora Installation Guide is followed.
- C. Acclimate the flooring in the secure storage area provided by the general contractor that is maintained permanently or temporarily at ambient service temperature and humidity (except walk in freezers or similar), or 68°F ± 5° F and 50% relative humidity, for at least 48 hours prior to application.
- D. For wooden subfloors American Plywood Association (APA) underlayment grade plywood shall be double sheathed at a suitable thickness (minimum total wood thickness of 1 1/4 inch) to overlay the wooden substrate and installed as detailed in ASTM F1482 Standard Practice for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring. Please note as plywood will expand and contract due to changes in moisture content and temperature, nora systems, Inc. cannot accept any liability of the plywood joints telegraphing through the finished floor.
- E. Perform mat bond tests in each major area (1 per ~1,000 sq. ft.) This shall consist of the proposed subfloor preparation, mitigation and leveling or smoothing products. A detailed method statement is available in the nora Installation Guide available on www.nora.com/us. Do not proceed with the installation until all the results of the bond test are acceptable.

Warning:

Do not sand, dry sweep, dry scrape, drill, saw, bead-blast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphalt "cutback" adhesive, or other adhesive. These products may contain asbestos fibers and/or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content.

Various local, state and federal government agencies have regulations governing the removal of in-place asbestos-containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable local, state and federal regulations.

The RFCI (Resilient Floor Covering Institute) "Recommended Work Practices for Removal of Resilient Floor Coverings" are a defined set of instructions addressed to the task of removing all resilient floor-covering structures including adhesive and adhesive residues. For more information contact RFCI directly at www.rfci.com or 706-882-3833.

Clean out and fill or repair any dormant saw cuts and cracks following the appropriate directions of the membrane, leveler or patch sections within the nora Installation Guide. For any expansion (moving) joints, use an industry standard expansion joint assembly.

- F. When required, use the nora membrane following the directions and requirements detailed within the nora Installation Guide. Provide written confirmation and photographs to the general contractor or end user that the subfloor was prepared correctly prior to the application of the membrane, and that the membrane was applied correctly (without pin-holes) including confirmation of the gallons used and total square feet installed.
- G. If required, use nora leveler following the nora Installation Guide. They shall be free of dust, solvents, paint, wax, varnish, oil, grease, asphalt, old adhesives, and other extraneous materials that may interfere with the bond. These shall be completely removed by mechanical means only. Dustless diamond grinding is the preferred method to remove contaminates and bond breakers as it also helps to level the concrete.
- H. Prime the subfloor prior to using the leveler. Note: a 1/8 inch minimum thickness is required for the leveler to be considered porous as required when using nora 485 or 685 acrylic adhesives.
- I. If nora leveler or patch is used, provide written confirmation and a workmanship warranty that (if required) the area was primed correctly, the leveler had been mixed and applied correctly to the required smoothness and or thickness of the general contractor / end user, or nora Installation Guide.

- J. Vacuum floors immediately prior to installing the flooring to remove all loose particles. If required, only use water based sweeping compounds. Do not use any wax or oil based compounds that leave behind a residue that may interfere with the adhesive bond.
- K. Install resilient flooring, including but not limited to the following, in accordance with the nora Installation Guide.
 - 1. Do not mix manufacturing batches of a color within the same area.
 - 2. Do not install resilient flooring over building expansion joints.
 - 3. Do not install defective or damaged resilient flooring.
 - 4. Layout resilient flooring to provide ~equal size at perimeter. Adjust layout as necessary to reduce the amount of resilient flooring which is cut to less than half full width.
 - 5. Lay resilient flooring with arrows in the same direction (excluding borders).
 - 6. Install resilient flooring without voids at seams. Lay seams together without stress.
 - 7. Cut/scribe resilient flooring neatly at perimeter and obstructions.
 - 8. Extend resilient flooring into reveals, closets, and similar openings.
 - 9. Remove excess adhesive immediately.
 - 10. Install reducer strips at exposed edges.
- L. Install nora wall base in accordance with manufacturer's Installation Guide. Install in longest practical lengths.
- M. Touch-up and repair any minor damage to eliminate all evidence of repair. Remove and replace work which cannot be satisfactorily repaired.

3.03 MANUFACTURER RESPONSIBILITIES

- A. Provide a one-year warranty against defects in manufacturing of all products supplied. Provide limited wear warranty for the flooring supplied, as detailed per product. Provide a nora pro install system warranty upon receipt of the required test results and documentation. Contact the nora Technical Department for details.
- B. Adherence to the Quality Management System approved by Lloyd's Register Quality Assurance to the Quality Management System Standard ISO 9001:2000.
- C. Provide flooring that shall contain no polyvinyl chloride or plasticizers.
- D. ISO 14001 Environmental Management Systems certification.
- E. Provide training for the installers at a nora[®] Technical Academy; contact the nora Technical Department for details and availability.
- F. Provide an effective surface moisture mitigation membrane that has three (3) levels of protection (depending on %RH moisture content of the concrete), and that is in compliance (46 grams/liter) with SCAQMD Rule 1113, < 100 grams/liter.
- G. Provide a water based primer, that is suitable for both porous and non-porous substrates including nora membrane, and that is in compliance (92 grams/liter) with SCAQMD Rule 1113, < 100 grams/liter.
- H. Provide a self-smoothing Portland cement based leveler, that can pumped or barrel mixed with water and be used at a minimum of 1/8 inch that is in compliance (0 grams/liter) with SCAQMD Rule 1168, < 50 grams/liter.
- I. Provide a Portland cement based patching compound that can be used from a feather edge to 1 inch in one application and is in compliance (0 grams/liter) with SCAQMD Rule 1168, < 50 grams/liter.
- J. Provide flooring that shall contain no halogens.
- K. Provide flooring surfaces that shall be easily cleaned and not require coatings and stripping, or use chemicals that may be hazardous to human health.
- L. Provide flooring that shall be free of anything known to be teratogenic, mutagenic or carcinogenic.
- M. Provide adhesives that are in compliance (0 grams/liter) with SCAQMD Rule 1168, < 60 grams/liter Standard for Rubber Floor Adhesives.

END OF SECTION

SECTION 09 91 23

INTERIOR PAINTING

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes surface preparation and the application of paint systems on the following interior substrates:
 1. Gypsum board.
 2. Plywood.
 3. Concrete Masonry Units

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.
 1. Submit Samples on rigid backing, 8 inches square.
 2. Step coats on Samples to show each coat required for system.
 3. Label each coat of each Sample.
 4. Label each Sample for location and application area.
- C. Product List: For each product indicated, include the following:
 1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
 2. Printout of current "MPI Approved Products List" for each product category specified in Part 2, with the proposed product highlighted.

1.4 QUALITY ASSURANCE

- A. MPI Standards:
 1. Products: Complying with MPI standards indicated and listed in "MPI Approved Products List."
 2. Preparation and Workmanship: . Comply with requirements in "MPI Architectural Painting Specification Manual" for products and paint systems indicated.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures

are between 50 and 95 deg F.

- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 - 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

PART 2 - PRODUCTS

2.1 PAINT, GENERAL

- A. Material Compatibility:
 - 1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.
- B. VOC Content of Field-Applied Interior Paints and Coatings: Provide products that comply with the limits for VOC content as referenced in Sustainable Design Requirements section 01 81 13.
- C. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the chemical restrictions as referenced in Sustainable Design Requirements section 01 81 13.
- D. Colors: As indicated in a finish schedule.

2.2 GYPSUM WALL BOARD PRIMER

- A. Interior Latex-Based Low Odor Primer: MPI#149.
 - 1. VOC Content: Refer to Sustainable Design Requirements section 01 81 13.
 - 2. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Benjamin Moore: Eco Spec Interior Latex Primer Sealer W231
 - b. Cloverdale Paint: Horizon Interior Low VOC Drywall Sealer 90700
 - c. Columbia Paint: Purecoat Low Odor Interior Primer 05-574-PP
 - d. Rodda Paint: Horizon Interior Latex Sealer 503501X

2.3 LATEX PAINTS

- A. Institutional Low-Odor/VOC Latex (Flat): MPI #143 (Gloss Level 1).
 - 1. VOC Content: Refer to Sustainable Design Requirements section 01 81 13.
 - 2. Environmental Performance Rating: EPR 4 or EPR 5.5.
 - 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Benjamin Moore: Eco Spec Int. Latex Flat W219
 - b. ICI Paints: Dulux, Lifemaster Flat Interior Latex Enamel 9100-0100
 - c. PPG: Pure Performance Interior Latex Flat 9-100
 - d. Sherwin-Williams: Harmony Interior Latex Flat B5W951
- B. Institutional Low-Odor/VOC Latex (Low Sheen): MPI #144 (Gloss Level 2).

1. VOC Content: Refer to Sustainable Design Requirements section 01 81 13.
 2. Environmental Performance Rating: EPR 4.5.
 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Benjamin Moore: Eco Spec Int. Latex Eggshell Enamel W223
 - b. ICI Paints: Devoe Paint, Wonder-Pure No-VOC/Odor Int. Eggshell Wall & Trim Paint DR3201
 - c. ICI Paints: Devoe Paint Wonder Pure Eggshell Interior Latex Enamel DRN32XX
 - d. ICI Paints: Dulux, Lifemaster Eggshell Interior Latex Enamel 9300-0100
 - e. PPG: Interior Eggshell White Pastel Base CP-5184
 - f. PPG: PPG, Interior Eggshell White/Pastel Base CP-5184
 - g. Sherwin-Williams: Harmony Interior Latex Egg-Shell B09W00951
- C. Institutional Low-Odor/VOC Latex (Semi-gloss): MPI #147 (Gloss Level 5).
1. VOC Content: Refer to Sustainable Design Requirements section 01 81 13.
 2. Environmental Performance Rating: EPR 3 or EPR 5.5.
 3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Benjamin Moore: Eco Spec Int. Latex Semi-Gloss Enamel W224
 - b. ICI Paints: Devoe Paint, Wonder Pure Semi-Gloss Interior Latex Enamel DRN33XX
 - c. ICI Paints: Dulux Lifemaster Semi-Gloss Interior Latex Enamel 9200-0100
 - d. PPG: Pure Performance Interior Semi-Gloss Latex 9-500
 - e. Sherwin-Williams: Harmony Interior Latex Semi-Gloss B1 OW00951

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 1. Concrete: 12 percent.
 2. Masonry (Clay and CMU): 12 percent.
 3. Wood: 15 percent.
 4. Gypsum Board: 12 percent.
 5. Plaster: 12 percent.
- C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.
- D. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 1. Beginning coating application constitutes Contractor's acceptance of substrates and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
 2. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
- C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and

incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.
- D. Concrete Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.
- E. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions.
1. Use applicators and techniques suited for paint and substrate indicated.
 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
- B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

3.4 FIELD QUALITY CONTROL

- A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when paints are being applied:
1. Owner will engage the services of a qualified testing agency to sample paint materials being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 2. Testing agency will perform tests for compliance with product requirements.
 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying-paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. CMU Substrates - General (Conditioned spaces excluding holding areas. Interior unconditioned spaces with CMU to receive exterior CMU paint system: MPI EXT 4.2AG5. Refer to Exterior Painting Schedule.)
 - 1. Institutional Low-Odor/VOC Latex System: MPI INT 4.2E-G2.
 - a. Prime Coat: Interior/exterior latex block filler; MPI #4.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat; MPI #144.
 - c. Topcoat: Institutional low-odor/VOC interior latex (low sheen); MPI #144.
- B. Gypsum Board Substrates - Including underside of soffits, and finished ceilings:
 - 1. Institutional Low-Odor/VOC Latex System: MPI INT 9.2M-G1.
 - a. Prime Coat: Interior latex primer/sealer; MPI #149.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching. topcoat; MPI #143.
 - c. Topcoat: Institutional low-odor/VOC interior latex (flat); MPI #143.
- C. Gypsum Board/Plywood Substrates - Including walls up to the underside of soffits including soffit faces, up to the underside of finished ceilings, and/or up to the underside of structural decks:
 - 1. Institutional Low-Odor/VOC Latex System: MPI INT 9.2M-G2.
 - a. Prime Coat: Interior latex primer/sealer; MPI #149.
 - b. Intermediate Coat: Institutional low-odor/VOC interior latex matching topcoat; MPI #144.
 - c. Topcoat: Institutional low-odor/VOC interior latex (low sheen); MPI #144.

3.1 WASTE MANAGEMENT

- A. Refer to Construction Waste Management and Disposal section 01 74 19.
- B. Properly reseal and repackage in original manufacturer's containers and return to owner.
 - 1. Coordinate with owner's representative prior to completion of application.
- C. Use trigger operated spray nozzles for water hoses.
- D. Where choices exist, preference is to be given to coatings which have the following characteristics:
 - 1. Water based.
 - 2. Require water cleanup.
 - 3. Low in Volatile Organic Compounds (VOG).
 - 4. Do not contain toxic metal pigments.
- E. Do not use kerosene or any such organic solvents to thin or clean up water based paints.
- F. Do not dispose of paints or solvents by pouring on the ground. Place in designated containers for proper disposal.
- G. Where paint recycling is available, collect all waste paint by type and provide for delivery to recycling or collection facility.

END OF SECTION

SECTION 10 28 13
TOILET ACCESSORIES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section Includes: Accessories indicated on Description of Work and as specified herein.
- B. Related Sections:
 - 1. Division 08 Section "Interior Glazing" for mirrors.
 - 2. Division 10 Section "Toilet Compartments."

1.2 SUBMITTALS

- A. Product Data: Submit printed data and installation instructions for each accessory. Identifying items and features to be provided demonstrating compliance with specifications.
- B. LEED Submittals LEED-NC version 2.2:
 - 1. Submit all LEED submittal information on the LEED Material Credits Documentation Worksheet referenced in Submittal Procedures section 01 33 00.
 - 2. Credit MR4.1 and MR4.2: Submit product data stating the percentage of postconsumer and pre-consumer (post-industrial) recycled content of each product and material by weight. Submit material cost for same.
 - 3. Credit MR5.1 and MR5.2: Submit a statement from the manufacturer stating the distance between the project location and final manufacturing locations; stating the distance between the project location and extraction/harvest/recovery site; and the percentage of product, by weight, that is within 500 miles for both the extraction and manufacture.

1.3 QUALITY ASSURANCE

- A. Products:
 - 1. Items are listed on Drawings by model number of one manufacturer. Like items, to the extent available, of other specified manufacturers, will be acceptable.
 - 2. Provide products of the same manufacturer for each type of accessory unit and for units exposed in the same areas wherever possible.
 - 3. Coordinate with Architect for acceptable designs and finishes.
 - 4. Stamped names or labels on exposed faces of units will not be permitted, except where otherwise specified.
 - 5. Provide locks where specified, with the same keying for all accessory units in the Project wherever possible.
- B. Regulatory Requirements: Provide products complying with all accessibility standards requirements including Americans with Disabilities Act (ADA) and Authorities having jurisdiction, recommendations for grasping, turning and operating force.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. A & J Washroom Accessories, Inc.
 - 2. American Specialties, Inc.
 - 3. Bobrick Washroom Equipment, Inc.
 - 4. Bradley Corporation.

2.2 MATERIALS

- A. General Material/Product Requirements:
 - 1. Recycled Content: Provide products produced from recycled materials to the greatest extent possible.
 - 2. Material and Product Sources: Provide materials and products harvested, extracted, or reclaimed and manufactured, within 500 miles of the Project site to the greatest extent possible.
- B. Stainless Steel: AISI, Type 302/304:
 - 1. Provide No.4 polished finish, unless otherwise specified.
- C. Brass: Cast or forged quality alloy, FS WW-P-541.
- D. Sheet Steel: Cold-rolled, commercial quality, ASTM A 366. Surface preparation and metal pretreatment as required for applied finish.
- E. Chromium Plating: Nickel and chromium electro-deposited on metal, ASTM B 456, Type SD2.
- F. Galvanized Steel Mounting Devices: Hot-dip galvanized after fabrication ASTM A 386.
- G. Key all items alike.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Secure accessories complying with the manufacturer's instructions for each item and each type of substrate construction, except use toggle bolts into hollow masonry.
- B. Use concealed fastenings wherever possible.
- C. Provide anchors, bolts and other necessary fasteners, and attach accessories securely to walls and partitions in locations as shown or directed.
- D. Install concealed mounting devices and fasteners fabricated of the same material as the accessories or of galvanized steel.
- E. Install exposed mounting devices and fasteners finished to match the accessories.
- F. Provide theft-resistant fasteners for all accessory mountings.

3.2 WASTE MANAGEMENT

- A. Refer to Construction Waste Management and Disposal section 01 74 19.
- B. Separate corrugated cardboard in accordance with the Waste Management Plan and place in designated areas for recycling.
- C. Separate and recycle waste materials in accordance with the Waste Management Plan and to the maximum extent economically feasible.
- D. Place materials defined as hazardous or toxic waste in designated containers.
- E. Supplier is to take back shipping and packing materials for re-use or recycling to the maximum extent economically feasible.

END OF SECTION