

BID OF _____

2016

PROPOSAL, CONTRACT, BOND AND SPECIFICATIONS

FOR

FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS

CONTRACT NO. 7391

PROJECT NO. 53W1865

MUNIS NO. 10122

IN

MADISON, DANE COUNTY, WISCONSIN

AWARDED BY THE COMMON COUNCIL
MADISON, WISCONSIN ON _____

CITY ENGINEERING DIVISION
1600 EMIL STREET
MADISON, WISCONSIN 53713

<https://bidexpress.com/login>

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

INDEX

SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERSA-1

SECTION B: PROPOSAL SECTIONB-1

SECTION C: SMALL BUSINESS ENTERPRISE C-1

SECTION D: SPECIAL PROVISIONS..... D-1

SECTION E: BIDDER'S ACKNOWLEDGEMENTE-1

SECTION F: DISCLOSURE OF OWNERSHIP & BEST VALUE CONTRACTINGF-1

SECTION G: BID BOND G-1

SECTION H: AGREEMENT H-1

SECTION I: PAYMENT AND PERFORMANCE BONDI-1

SECTION J: PREVAILING WAGE RATES..... J-1

This Proposal, and Agreement have
been prepared by:

**CITY ENGINEERING DIVISION
CITY OF MADISON
MADISON, DANE COUNTY, WISCONSIN**



Robert F. Phillips, P.E., City Engineer

RFP: ps

SECTION A: ADVERTISEMENT FOR BIDS AND INSTRUCTIONS TO BIDDERS

REQUEST FOR BID FOR PUBLIC WORKS CONSTRUCTION CITY OF MADISON, WISCONSIN

A BEST VALUE CONTRACTING MUNICIPALITY

PROJECT NAME:	FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO.:	7391
SBE GOAL	11%
BID BOND	5%
PRE BID MEETING (1:00 P.M.)	6/3/2016
PRE BID SITE WALK THROUGH MEETING (1:30 P.M.)	6/1/2016
PREQUALIFICATION APPLICATION DUE (1:00 P.M.)	6/3/2016
BID SUBMISSION (1:00 P.M.)	6/10/2016
BID OPEN (1:30 P.M.)	6/10/2016
PUBLISHED IN WSJ	5/20, 5/27 & 6/3/2016

PRE BID MEETING: Representatives of the Affirmative Action Department will be present to discuss the Small Business Enterprise requirements at 1600 Emil Street, Madison Wisconsin.

PRE BID SITE WALK THROUGH MEETING:

A single pre-bid conference will be conducted for the purposes of a pre-bid walk through. All bidding contractors are encouraged to attend.

1. The meeting will be held at **1:30 pm on Wednesday, June 1st, 2016.**
2. This meeting will take place on site at Forest Hill Cemetery, 1 Speedway Road.
3. A representative from Isthmus Architectures and City Staff will be on hand to conduct the building walk through, discuss the plans, specifications and expectations of the contract. Questions, clarifications will be answered per addendum.

PREQUALIFICATION APPLICATION: Forms are available on our website, www.cityofmadison.com/business/pw/forms.cfm. If not currently prequalified in the categories listed in Section A, an amendment to your Prequalification will need to be submitted prior to the same due date. Postmark is not applicable.

BIDS TO BE SUBMITTED by hand to 1600 EMIL ST., MADISON, WI 53713 or online at www.bidexpress.com.

THE BID OPENING is at 1600 EMIL ST., MADISON, WI 53713.

STANDARD SPECIFICATIONS

The City of Madison's Standard Specifications for Public Works Construction - 2016 Edition, as supplemented and amended from time to time, forms a part of these contract documents as if attached hereto.

These standard specifications are available on the City of Madison Public Works website, www.cityofmadison.com/Business/PW/specs.cfm.

The Contractor shall review these Specifications prior to preparation of proposals for the work to be done under this contract, with specific attention to Article 102, "BIDDING REQUIREMENTS AND

CONDITIONS” and Article 103, “AWARD AND EXECUTION OF THE CONTRACT.” For the convenience of the bidder, below are highlights of three subsections of the specifications.

SECTION 102.1: PRE-QUALIFICATION OF BIDDERS

In accordance with Wisconsin State Statutes 66.0901 (2) and (3), all bidders must submit to the Board of Public Works proof of responsibility on forms furnished by the City. The City requires that all bidders be qualified on a biennial basis.

Bidders must present satisfactory evidence that they have been regularly engaged in the type of work specified herein and they are fully prepared with necessary capital, materials, machinery and supervisory personnel to conduct the work to be contracted for to the satisfaction of the City. All bidders must be pre-qualified by the Board of Public Works for the type of construction on which they are bidding prior to the opening of the bid.

In accordance with Section 39.02(9)(a)l. of the General Ordinances, all bidders shall submit in writing to the Affirmative Action Division Manager of the City of Madison, a Certificate of Compliance or an Affirmative Action Plan at the same time or prior to the submission of the proof of responsibility forms.

The bidder shall be disqualified if the bidder fails to or refuses to, prior to opening of the bid, submit a Certificate of compliance, Affirmative Action Plan or Affirmative Action Data Update, as applicable, as defined by Section 39.02 of the General Ordinances (entitled Affirmative Action) and as required by Section 102.11 of the Standard Specifications.

SECTION 102.4 PROPOSAL

No bid will be accepted that does not contain an adequate or reasonable price for each and every item named in the Schedule of Unit Prices.

A lump sum bid for the work in accordance with the plans and specifications is required. The lump sum bid must be the same as the total amounts bid for the various items and it shall be inserted in the space provided.

All papers bound with or attached to the proposal form are considered a part thereof and must not be detached or altered when the proposal is submitted. The plans, specifications and other documents designated in the proposal form will be considered a part of the proposal whether attached or not.

A proposal submitted by an individual shall be signed by the bidder or by a duly authorized agent. A proposal submitted by a partnership shall be signed by a member/partner or by a duly authorized agent thereof. A proposal submitted by a corporation shall be signed by an authorized officer or duly authorized registered agent of such corporation, and the proposal shall show the name of the State under the laws of which such corporation was chartered. The required signatures shall in all cases appear in the space provided thereof on the proposal.

Each proposal shall be placed, together with the proposal guaranty, in a sealed envelope, so marked as to indicate name of project, the contract number or option to which it applies, and the name and address of the Contractor or submitted electronically through Bid Express (www.bidexpress.com). Proposals will be accepted at the location, the time and the date designated in the advertisement. Proposals received after the time and date designated will be returned to the bidder unopened.

The Bidder shall execute the Disclosure of Ownership form. REFER TO SECTION F.

SECTION 102.5: BID DEPOSIT (PROPOSAL GUARANTY)

All bids, sealed or electronic, must be accompanied with a Bid Bond equal to at least 5% of the bid or a Certificate of Annual/Biennial Bid Bond or certified check, payable to the City Treasurer. Bid deposit of the

successful bidders shall be returned within forty-eight (48) hours following execution of the contract and bond as required.

PREVAILING WAGE RATES

Prevailing Wage Rates may be required and are attached in Section J of the contract. See Special Provisions to determine applicability.

Bidders for this Contract(s) must be Pre-Qualified for at least one of the following type(s) of construction denoted by an

Building Demolition

- 101 Asbestos Removal
- 120 House Mover

- 110 Building Demolition

Street, Utility and Site Construction

- 201 Asphalt Paving
- 205 Blasting
- 210 Boring/Pipe Jacking
- 215 Concrete Paving
- 220 Con. Sidewalk/Curb & Gutter/Misc. Flat Work
- 221 Concrete Bases and Other Concrete Work
- 222 Concrete Removal
- 225 Dredging
- 230 Fencing
- 235 Fiber Optic Cable/Conduit Installation
- 240 Grading and Earthwork
- 241 Horizontal Saw Cutting of Sidewalk
- 242 Infrared Seamless Patching
- 245 Landscaping, Maintenance
- 250 Landscaping, Site and Street
- 251 Parking Ramp Maintenance
- 252 Pavement Marking
- 255 Pavement Sealcoating and Crack Sealing
- 260 Petroleum Above/Below Ground Storage Tank Removal/Installation
- 262 Playground Installer
- 265 Retaining Walls, Precast Modular Units

- 270 Retaining Walls, Reinforced Concrete
- 275 Sanitary, Storm Sewer and Water Main Construction
- 276 Sawcutting
- 280 Sewer Lateral Drain Cleaning/Internal TV Insp.
- 285 Sewer Lining
- 290 Sewer Pipe Bursting
- 295 Soil Borings
- 300 Soil Nailing
- 305 Storm & Sanitary Sewer Laterals & Water Svc.
- 310 Street Construction
- 315 Street Lighting
- 318 Tennis Court Resurfacing
- 320 Traffic Signals
- 325 Traffic Signing & Marking
- 332 Tree pruning/removal
- 333 Tree, pesticide treatment of
- 335 Trucking
- 340 Utility Transmission Lines including Natural Gas, Electrical & Communications
- 399 Other _____

Bridge Construction

- 501 Bridge Construction and/or Repair

Building Construction

- 401 Floor Covering (including carpet, ceramic tile installation, rubber, VCT)
- 402 Building Automation Systems
- 403 Concrete
- 404 Doors and Windows
- 405 Electrical - Power, Lighting & Communications
- 410 Elevator - Lifts
- 412 Fire Suppression
- 413 Furnishings - Furniture and Window Treatments
- 415 General Building Construction, Equal or Less than \$250,000
- 420 General Building Construction, \$250,000 to \$1,500,000
- 425 General Building Construction, Over \$1,500,000
- 428 Glass and/or Glazing
- 429 Hazardous Material Removal
- 430 Heating, Ventilating and Air Conditioning (HVAC)
- 433 Insulation - Thermal
- 435 Masonry/Tuck pointing

- 437 Metals
- 440 Painting and Wallcovering
- 445 Plumbing
- 450 Pump Repair
- 455 Pump Systems
- 460 Roofing and Moisture Protection
- 464 Tower Crane Operator
- 461 Solar Photovoltaic/Hot Water Systems
- 465 Soil/Groundwater Remediation
- 466 Warning Sirens
- 470 Water Supply Elevated Tanks
- 475 Water Supply Wells
- 480 Wood, Plastics & Composites - Structural & Architectural
- 499 Other _____

State of Wisconsin Certifications

- 1 Class 5 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for quarries, open pits and road cuts.
- 2 Class 6 Blaster - Blasting Operations and Activities 2500 feet and closer to inhabited buildings for trenches, site excavations, basements, underwater demolition, underground excavations, or structures 15 feet or less in height.
- 3 Class 7 Blaster - Blasting Operations and Activities for structures greater than 15' in height, bridges, towers, and any of the objects or purposes listed as "Class 5 Blaster or Class 6 Blaster".
- 4 Petroleum Above/Below Ground Storage Tank Removal and Installation (Attach copies of State Certifications.)
- 5 Hazardous Material Removal (Contractor to be certified for asbestos and lead abatement per the Wisconsin Department of Health Services, Asbestos and Lead Section (A&LS).) See the following link for application: www.dhs.wisconsin.gov/Asbestos/Cert. State of Wisconsin Performance of Asbestos Abatement Certificate must be attached.
- 6 Certification number as a Certified Arborist or Certified Tree Worker as administered by the International Society of Arboriculture
- 7 Pesticide application (Certification for Commercial Applicator For Hire with the certification in the category of turf and landscape (3.0) and possess a current license issued by the DATCP)
- 8 State of Wisconsin Master Plumbers License.

SECTION B: PROPOSAL

Please refer to the
Bid Express Website
at <https://bidexpress.com>
look up contract number
and go to
Section B: Proposal Page

You can access all City of Madison bid solicitations for FREE at www.bidexpress.com

Click on the "Register for Free" button and follow the instructions to register your company and yourself. You will be asked for a payment subscription preference, since you may wish to bid online someday. Simply choose the method to pay on a 'per bid' basis. This requires no payment until / unless you actually bid online. You can also choose the monthly subscription plan at this time. You will, however, be asked to provide payment information. Remember, you can change your preference at anytime. You will then be able to complete your free registration and have full access to the site. Your free access does not require completion of the 'Digital ID' process, so you will have instant access for viewing and downloading. To be prepared in case you ever do wish to bid online, you may wish to establish your digital ID also, since you cannot bid without a Digital ID.

If you have any problems with the free registration process, you can call the bidexpress help team, toll free at 1-888-352-2439 (option 1, option1).

SECTION C: SMALL BUSINESS ENTERPRISE

Instructions to Bidders City of Madison SBE Program Information

2 Small Business Enterprise (SBE) Program Information

2.1 Policy and Goal

The City of Madison reaffirms its policy of nondiscrimination in the conduct of City business by maintaining a procurement process which remains open to all who have the potential and ability to sell goods and services to the City. It is the policy of the City of Madison to allow Small Business Enterprises (SBE) maximum feasible opportunity to participate in City of Madison contracting. The bidder acknowledges that its bid has been submitted in accordance with the SBE program and is for the public's protection and welfare.

Please refer to the "ADVERTISEMENT FOR BIDS" for the goal for the utilization of SBEs on this project. SBEs may participate as subcontractors, vendors and/or suppliers, which provide a commercially useful function. The dollar value for SBE suppliers or 'materials only' vendors shall be discounted to 60% for purposes of meeting SBE goals.

A bidder which achieves or exceeds the SBE goal will be in compliance with the SBE requirements of this project. In the event that the bidder is unable to achieve the SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Failure to either achieve the goal or demonstrate a good faith effort to do so will be grounds for the bidder being deemed a non-responsible contractor ineligible for award of this contract.

A bidder may count towards its attainment of the SBE goal only those expenditures to SBEs that perform a commercially useful function. For purposes of evaluating a bidder's responsiveness to the attainment of the SBE goal, the contract participation by an SBE is based on the percentage of the total base bid proposed by the Contractor. The total base bid price is inclusive of all addenda.

Work performed by an SBE firm in a particular transaction can be counted toward the goal only if it involves a commercially useful function. That is, in light of industry practices and other relevant considerations, does the SBE firm have a necessary and useful role in the transaction, of a kind for which there is a market outside the context of the SBE Program, or is the firm's role a superfluous step added in an attempt to obtain credit towards goals? If, in the judgment of the Affirmative Action Division, the SBE firm will not perform a commercially useful function in the transaction, no credit towards goals will be awarded.

The question of whether a firm is performing a commercially useful function is completely separate from the question of whether the firm is an eligible SBE. A firm is eligible if it meets the definitional criteria and ownership and control requirements, as set forth in the City of Madison's SBE Program.

If the City of Madison determines that the SBE firm is performing a commercially useful function, then the City of Madison must then decide what that function is. If the commercially useful function is that of an SBE vendor / supplier that regularly transacts business with the respective product, then the City of Madison will count 60% of the value of the product supplied toward SBE goals.

To be counted, the SBE vendor / supplier must be engaged in selling the product in question to the public. This is important in distinguishing an SBE vendor / supplier, which has a regular trade with a variety of customers, from a firm which performs supplier-like functions on an ad hoc basis or for only one or two contractors with whom it has a special relationship.

A supplier of bulk goods may qualify as an eligible SBE vendor / supplier if it either maintains an inventory or owns or operates distribution equipment. With respect to the distribution equipment; e.g., a fleet of trucks, the term "operates" is intended to cover a situation in which the supplier leases the equipment on a regular basis for its entire business. It is not intended to cover a situation in which the firm simply provides drivers for trucks owned or leased by another party; e.g., a prime contractor, or leases such a party's trucks on an ad hoc basis for a specific job.

If the commercially useful function being performed is not that of a qualified SBE vendor / supplier, but rather that of delivery of products, obtaining bonding or insurance, procurement of personnel, acting as a broker or manufacturer's representative in the procurement of supplies, facilities, or materials, etc., only the fees or commissions will apply towards the goal.

For example, a business that simply transfers title of a product from manufacturer to ultimate purchaser; e. g., a sales representative who re-invoices a steel product from the steel company to the Contractor, or a firm that puts a product into a container for delivery would not be considered a qualified SBE vendor / supplier. The Contractor would not receive credit based on a percentage of the cost of the product for working with such firms.

Concerning the use of services that help the Contractor obtain needed supplies, personnel, materials or equipment to perform a contract: only the fee received by the service provider will be counted toward the goal. For example, use of a SBE sales representative or distributor for a steel company, if performing a commercially useful function at all, would entitle the Contractor receiving the steel to count only the fee paid to the representative or distributor toward the goal. This provision would also govern fees for professional and other services obtained expressly and solely to perform work relating to a specific contract.

Concerning transportation or delivery services: if an SBE trucking company picks up a product from a manufacturer or a qualified vendor / supplier and delivers the product to the Contractor, the commercially useful function it is performing is not that of a supplier, but simply that of a transporter of goods. Unless the trucking company is itself the manufacturer or a qualified vendor / supplier in the product, credit cannot be given based on a percentage of the cost of the product. Rather, credit would be allowed for the cost of the transportation service.

The City is aware that the rule's language does not explicitly mention every kind of business that may contribute work on this project. In administering these programs, the City would, on a case-by-case basis, determine the appropriate counting formula to apply in a particular situation.

2.2 Contract Compliance

Questions concerning the SBE Program shall be directed to the Contract Compliance Officer of the City of Madison Department of Civil Rights, Affirmative Action Division, 210 Martin Luther King, Jr. Blvd., Room 523, Madison, WI 53703; telephone (608) 266-4910.

2.3 Certification of SBE by City of Madison

The Affirmative Action Division maintains a directory of SBEs which are currently certified as such by the City of Madison. Contact the Contract Compliance Officer as indicated in Section 2.2 to receive a copy of the SBE Directory or you may access the SBE Directory online at www.cityofmadison.com/dcr/aaTBDir.cfm.

All contractors, subcontractors, vendors and suppliers seeking SBE status must complete and submit the **Targeted Business Certification Application** to the City of Madison Affirmative Action Division by the time and date established for receipt of bids. A copy of the Targeted Business Certification Application is available by contacting the Contract Compliance Officer at the address and telephone indicated in Section 2.2 or you may access the Targeted Business Certification Application online at www.cityofmadison.com/dcr/aaTBDir.cfm. Submittal of the Targeted Business Certification Application by the time specified does not guarantee that the applicant will be certified as a SBE eligible to be utilized towards meeting the SBE goal for this project.

2.4 Small Business Enterprise Compliance Report

2.4.1 Good Faith Efforts

Bidders shall take all necessary affirmative steps to assure that SBEs are utilized when possible and that the established SBE goal for this project is achieved. A contractor who self performs a portion of the work, and is pre-qualified to perform that category of work, may subcontract that portion of the work, but shall not be required to do so. When a bidder is unable to achieve the established SBE goal, the bidder must demonstrate that a good faith effort to do so was made. Such a good faith effort should include the following:

- 2.4.1.1 Attendance at the pre-bid meeting.
- 2.4.1.2 Using the City of Madison's directory of certified SBEs to identify SBEs from which to solicit bids.
- 2.4.1.3 Assuring that SBEs are solicited whenever they are potential sources.
- 2.4.1.4 Referring prospective SBEs to the City of Madison Affirmative Action Division for certification.
- 2.4.1.5 Dividing total project requirements into smaller tasks and/or quantities, where economically feasible, to permit maximum feasible SBE participation.
- 2.4.1.6 Establishing delivery schedules, where requirements permit, which will encourage participation by SBEs.
- 2.4.1.7 Providing SBEs with specific information regarding the work to be performed.
- 2.4.1.8 Contacting SBEs in advance of the deadline to allow such businesses sufficient time to prepare a bid.
- 2.4.1.9 Utilizing the bid of a qualified and competent SBE when the bid of such a business is deemed reasonable (i.e. 5% above the lowest bidder), although not necessarily low.
- 2.4.1.10 Contacting SBEs which submit a bid, to inquire about the details of the bid and confirm that the scope of the work was interpreted as intended.

2.4.2 Reporting SBE Utilization and Good Faith Efforts

The Small Business Enterprise Compliance Report is to be submitted by the bidder with the bid: This report is due by the specified bid closing time and date. Bids submitted without a completed SBE Compliance Report as outlined below

shall be deemed non-responsible and the bidder ineligible for award of this contract.

2.4.2.1 If the Bidder meets or exceeds the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.1.1 **Cover Page**, Page C-6; and

2.4.2.1.2 **Summary Sheet**, C-7.

2.4.2.2 If the bidder does not meet the goal established for SBE utilization, the Small Business Enterprise Compliance Report shall consist of the following:

2.4.2.2.1 **Cover Page**, Page C-6;

2.4.2.2.2 **Summary Sheet**, C-7; and

2.4.2.2.3 **SBE Contact Report**, C-8 and C-9. (A separate Contact Report must be completed for each applicable SBE which is not utilized.)

2.5 Appeal Procedure

A bidder which does not achieve the established goal and is found non-responsible for failure to demonstrate a good faith effort to achieve such goal and subsequently denied eligibility for award of contract may appeal that decision to the Small Business Enterprises Appeals Committee. All appeals shall be made in writing, and shall be delivered to and received by the City Engineer no later than 4:30 PM on the third business day following the bidder's receipt of the written notification of ineligibility by the Affirmative Action Division Manager. Postmark not acceptable. The notice of appeal shall state the basis for the appeal of the decision of the Affirmative Action Division Manager. The Appeal shall take place in accordance with Madison General Ordinance 33.54.

2.6 SBE Requirements After Award of the Contract

The successful bidder shall identify SBE subcontractors, suppliers and vendors on the subcontractor list in accordance with the specifications. The Contractor shall submit a detailed explanation of any variances between the listing of SBE subcontractors, vendors and/or suppliers on the subcontractor list and the Contractor's SBE Compliance Report for SBE participation.

No change in SBE subcontractors, vendors and/or suppliers from those SBEs indicated in the SBE Compliance Report will be allowed without prior approval from the Engineer and the Affirmative Action Division. The contractor shall submit in writing to the City of Madison Affirmative Action Division a request to change any SBE citing specific reasons which necessitate such a change. The Affirmative Action Division will use a general test of reasonableness in approving or rejecting the contractor's request for change. If the request is approved, the Contractor will make every effort to utilize another SBE if available.

The City will monitor the project to ensure that the actual percentage commitment to SBE firms is carried out.

2.7 SBE Definition and Eligibility Guidelines

A Small Business Enterprise is a business concern awarded certification by the City of Madison. For the purposes of this program a Small Business Enterprise is defined as:

- A. An independent business operated under a single management. The business may not be a subsidiary of any other business and the stock or ownership may not be held by any individual or any business operating in the same or a similar field. In determining whether an entity qualifies as a SBE, the City shall consider all factors relevant to being an independent business including, but not limited to, the date the business was established, adequacy of its resources for the work in which it proposes to involve itself, the degree to which financial, equipment leasing and other relationships exist with other ineligible firms in the same or similar lines of work. SBE owner(s) shall enjoy the customary incidents of ownership and shall share in the risks and profits commensurate with their enjoyment interests, as demonstrated by an examination of the substance rather than form or arrangements that may be reflected in its ownership documents.
- B. A business that has averaged no more than \$4.0 million in annual gross receipts over the prior three year period and the principal owner(s) do not have a personal net worth in excess of \$1.32 million.

Firm and/or individuals that submit fraudulent documents/testimony may be barred from doing business with the City and/or forfeit existing contracts.

SBE certification is valid for one (1) year unless revoked.

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

Small Business Enterprise Compliance Report

**This information may be submitted electronically through
Bid Express or submitted with bid in sealed envelope.**

Cover Sheet

Prime Bidder Information

Company: _____

Address: _____

Telephone Number: _____ Fax Number: _____

Contact Person/Title: _____

Prime Bidder Certification

I, _____, _____ of
Name Title
_____ certify that the information
Company

contained in this SBE Compliance Report is true and correct to the best of my knowledge and belief.

Witness' Signature

Bidder's Signature

Date

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

Small Business Enterprise Compliance Report

SBE Contact Report

Submit separate copy of this form for each SBE which you are not able to utilize towards meeting the SBE goal for this project. Attach separate sheets if necessary.

SBE Information

Company: _____

Address: _____

Telephone Number: _____

Contact Person/Title: _____

1. Outline below all efforts to solicit a bid from the above SBE. Include date, means of contact, who from your company made this contact and the result.

2. Describe the information provided to the aforementioned SBE regarding the scope of work for which he/she was to provide a bid.

Is this the same scope of work on which the subcontractor you intend to utilize based his/her bid?

Yes No

3. Did this SBE submit a bid? Yes No

4. Is the General Contractor pre-qualified to self-perform this category of work?

Yes No

5. If you responded "Yes" to Question 3, please check the items below which apply and provide the requested detail. If you responded "No" to Question 3, please skip ahead to item 6 below.

The SBE listed above is unavailable for work on this project for the following reasons. Provide specific detail for this conclusion.

The SBE listed above is unqualified for work on this project. Provide specific details for this conclusion.

The SBE listed above provided a price that was unreasonable (i.e. more than 5% above the lowest bidder). Provide specific detail for this conclusion including the SBE's price and the price of the subcontractor you intend to utilize.

A contract with the SBE listed above may constitute a breach of the bidder's collective bargaining agreements. Provide specific detail for this conclusion including, but not limited to, correspondence from the SBE indicating it will not sign a project labor agreement and/or correspondence from the applicable trade union indicating a project labor agreement will not be allowed at the time of project bidding.

Other; please specify reason(s) other than listed above which made it impossible for you to utilize this SBE on this project.

6. Describe any other good faith efforts:

SECTION D: SPECIAL PROVISIONS

FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS CONTRACT NO. 7391

It is the intent of these Special Provisions to set forth the final contractual intent as to the matter involved and shall prevail over the Standard Specifications and plans whenever in conflict therewith. In order that comparisons between the Special Provisions can be readily made, the numbering system for the Special Provisions is equivalent to that of the Specifications.

Whenever in these Specifications the term "Standard Specifications" appears, it shall be taken to refer to the City of Madison Standard Specifications for Public Works Construction and Supplements thereto.

SECTION 102.9 BIDDER'S UNDERSTANDING

Tax Exempt Status: Effective with all contracts executed after January 1, 2016, the sales price from the sale, storage, use or other consumption of tangible personal property that is used in conjunction with a public works improvement for a tax exempt entity (including the City of Madison), is exempt from State sales tax. Said property must become a component of the project owned by the tax exempt entity and includes: any building; shelter; parking lot; parking garage; athletic field; storm sewer; water supply system; or sewerage and waste water treatment facility, but does not include a highway, street or road.

The contractor shall ensure that the exemption for sales and use tax available under Wis. Stat. Sec. 77.54(9m) applies where available. The contractor shall provide all necessary documentation as required by the State of Wisconsin and the City of Madison to comply with this exemption.

SECTION 102.10 PREVAILING WAGE

For this project, payment of prevailing wages (white sheet) shall be required unless the box indicating prevailing wages are not required is checked below.

Prevailing wages shall not be required when this box is checked.

If prevailing wages (white sheets) are required, the wages and benefits paid on the contract shall not be less than those specified in the Prevailing Wage Determination included with these contract documents for the following types of work:

- Building or Heavy Construction
- Sewer, Water, or Tunnel Construction
- Local Street or Miscellaneous Paving Construction
- Residential or Agricultural Construction

When multiple boxes are checked, worker's wages may vary according to the type and area of work performed. It is the responsibility of the Contractor to determine and apply the appropriate wage rate for the specific work assigned.

SECTION 102.12 BEST VALUE CONTRACTING

This Contract shall be considered a Best Value Contract if the Contractor's bid is equal to or greater than \$56,500 for a single trade contract; or equal to or greater than \$277,000 for a multi-trade contract pursuant to MGO 33.07(7).

SECTION 102.14 BAN THE BOX – ARREST AND CRIMINAL BACKGROUND CHECKS (SEC. 39.08, MGO)

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(I), MGO

as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

- A. Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

"Background Check" means the process of checking an applicant's arrest and conviction record, through any means.

- B. Requirements.** For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant's arrest and conviction record, as defined herein.
2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.
3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.
5. Comply with all other provisions of Sec. 39.08, MGO.

- C. Exemptions:** This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

SECTION 103 AWARD AND EXECUTION OF THE CONTRACT

The awarded Contractor shall completely execute the signing of all contract documents and submit them to City Engineering prior to **12:00 pm on July 5th, 2016**. No exceptions or extensions to the above date will be permitted.

SECTION 109.2 PROSECUTION OF THE WORK

Work shall begin only after the contract is completely executed. The Contractor shall begin work within seven (7) days after receiving the start work letter. It is anticipated that the start work letter shall be issued on or about **July 22th, 2016**. Within 5 calendar days after the effective date of the Start Work Letter, the Contractor shall provide a schedule per Section 1.17 Schedule of Operations of Division 01 00 00 General Requirements.

SECTION 109.7 TIME OF COMPLETION

Construction Closeout. The point in the contract where all contractual requirements associated the execution of the work as described in the plans, specifications, and other documents have been successfully met.

Contract Closeout. The point in the contract where all contractual requirements associated with the City of Madison, Board of Public Works contract has been successfully met.

Construction Closeout shall occur within 90 working days from the start work date.

Contract Closeout shall occur within 60 calendar days from construction closeout.

END OF SECTION

DIVISION 1- GENERAL REQUIREMENTS

SECTION 01 00 00

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42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58
59
60
61

Contents

PART 1 – GENERAL 1

1.1. SCOPE 1

1.2. PRE-BID INFORMATION 2

1.3. CONTACTS 2

1.4. QUALIFICATIONS OF BIDDER 2

1.5. WORK BY THE OWNER AND OWNER FURNISHED EQUIPMENT 2

1.6. SALVAGE MATERIALS 2

1.7. PROVISIONS FOR FUTURE WORK 2

1.8. SPECIAL SITE CONDITIONS 2

1.9. ALTERNATES 3

1.10. STANDARD SPECIFICATIONS 3

1.11. GENERAL REQUIREMENTS 3

1.12. CONTRACTOR’S RESPONSIBILITY PRIOR BIDDING 4

1.13. PAYMENT AND CHANGE ORDERS 4

1.14. COOPERATION AND RESPONSIBILITIES BETWEEN TRADES 4

1.15. SUBMITTALS 4

1.16. GUARANTEES 5

1.17. SCHEDULE OF OPERATIONS 5

1.18. DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS 5

1.19. QUALITY ASSURANCE 6

1.20. CODES AND PERMITS 8

1.21. ENVIRONMENT, SAFETY AND HEALTH (EHS) 9

1.22. STAIRS, SCAFFOLDS, HOISTS, ELEVATORS OR CRANES 12

1.23. SAFEGUARDS - EXISTING EQUIPMENT, UNDERGROUND UTILITIES AND ARTIFACTS 13

1.24. OPERATION AND MAINTENANCE DATA 13

1.25. ACCESS PANELS AND DOORS 14

1.26. LOOSE AND DETACHABLE PARTS 14

PART 2 – PRODUCTS 14

2.1. SPECIFIED ITEMS - SUBSTITUTES 14

2.2. APPROVED TESTING LABORATORIES 14

2.3. HAZARDOUS SUBSTANCES 14

2.4. BARRICADES, SIGNS, WARNING DEVICES, AND TEMPORARY PLASTIC BARRIERS 16

2.5. SEALING AND FIRESTOPPING 16

PART 3 – EXECUTION 17

3.1. PROJECT MEETINGS 17

3.2. CONTINUITY OF SERVICE, TRAFFIC, SHUTDOWN AND ACCESS 17

3.3. DEMOLITION 17

3.4. TEMPORARY CONSTRUCTION 17

3.5. INSTALLATION 18

3.6. DELIVERY, STORAGE AND HANDLING OF MATERIALS 18

3.7. CONCRETE WORK 18

3.8. OPENINGS, SLEEVES, CUTTING, STRUCTURAL ATTACHMENT, PATCHING AND PAINTING 18

3.9. IDENTIFICATION 18

3.10. TRAINING AND DEMONSTRATION 18

3.11. TESTS, PUNCH LIST AND FINAL ACCEPTANCE 18

3.12. CLEANING 19

APPENDIX A - WASTE MATERIALS ESTIMATING SHEET 20

APPENDIX B - LANDFILL LOG 21

APPENDIX C - WASTE DIVERSION LOG 22

PART 1 – GENERAL

1.1. SCOPE

- A. The work under this section includes general rules for the project.
- B. Work under this contract shall consist of all necessary materials and labor to provide for the roof replacement and masonry repairs to the mausoleum located in the Forest Hill Cemetery at 1 Speedway Road per plans and specifications.

1 **1.2. PRE-BID INFORMATION**

- 2 A. There will be a pre-bid tour of the existing building on **Wednesday, June 1st, 2016 at 1:30 PM** to provide bidders the oppor-
3 tunity to acquaint themselves with the project. A representative from the designer's office will be present to take questions
4 that will be answered by addendum. Alternate site visits may be arranged with the owner Project Manager.
5

6 **1.3. CONTACTS**

- 7 A. Send all pre-bid inquiries to the owner's project management
8 B. The owner's representative and designee for project management:
9 1. Paul Stauffer
10 2. Company: City of Madison
11 3. Address: Room 115, 210 Martin Luther King Jr. Blvd.
12 4. Phone: Office (608)266-4366, Cell (608) 575-5270
13 5. Email: pstauffer@cityofmadison.com
14 C. The owner's designee for architecture and engineering is:
15 1. Laura Davis
16 2. Company: Isthmus Architecture, Inc.
17 3. Address: 613Williamson Street, Suite 203
18 4. Phone: (608) 310-5360
19 5. Email: davis@is-arch.com
20

21 **1.4. QUALIFICATIONS OF BIDDER**

- 22 A. By submitting the bid, the bidder and each subcontractor certifies as to meeting the following requirements:
23 1. Has completed one projects of at least 50% of the size or value of the division of work being bid and the type of work
24 completed is similar to that being bid. Additional requirements will be described in the appropriate technical section of
25 these specifications.
26 2. Has access to all necessary equipment and has organizational capacity and technical competence necessary to do the
27 work properly and expeditiously.
28 3. Maintains a permanent place of business.
29 4. Additional qualifications as stated in project specifications.
30

31 **1.5. WORK BY THE OWNER AND OWNER FURNISHED EQUIPMENT**

- 32 A. Any asbestos removal shall be performed by owner under a separate contract. There is no anticipated asbestos removal
33 anticipated for this project, however, existing building materials that may have hazardous content and are located within
34 the work area (example: floor tile, ceiling tile, pipe insulation) shall be sampled, tested, and removed by the City. If any sus-
35 pect hazardous building materials are found by the contractor during demolition or renovation work that have not been
36 sampled and tested, work must stop and a certified hazardous material inspector must be contacted by the City to assess
37 the situation. Inaccessible areas may exist within the facility.
38 B. The following work shall be accomplished by the owner or will be let under separate contracts and will not be included
39 under this Contract. The contractor shall coordinate his work with the work provided :
40 **The removal of the overhead electrical and the relocation of the gas meter shall be completed by MG&E at the City ex-**
41 **pende. MG&E billing shall be made directly to the City.**
42 **The City Park Department shall be responsible for:**
43 • **Disconnecting/removal of secondary plumbing from the meter to the mausoleum. Reconnecting the secondary**
44 **plumbing to the gas meter at its new location.**
45 • **Removal and installation of any electrical devices, conduit or panels associated with incoming electrical power**
46 **in the area of the storage addition.**
47 • **Reinstalling a new electrical panel on the outside east wall of the mausoleum. This work shall involve trenching**
48 **from the garage located at the east end of the parking lot to the area where the electrical panels were previ-**
49 **ously removed.**
50 **The masonry contractor shall be responsible for any patching to the mausoleum stone after this equipment is removed.**
51 **The contractor is responsible for working through the City Project Manager to coordinate the above work. Work shall be**
52 **coordinated in such a manner as to not cause any delays to the contractor's submitted work schedule.**
53

54 **1.6. SALVAGE MATERIALS**

- 55 A. No materials removed from this project shall be reused unless noted in the plans and specifications. All materials removed
56 shall become the property of and shall be disposed of by the Contractor.
57

58 **1.7. PROVISIONS FOR FUTURE WORK**

59 Not applicable.
60

61 **1.8. SPECIAL SITE CONDITIONS**

- 62 A. Unless otherwise noted, construction operations shall be limited to the hours between **7:30 a.m. and 6:00 p.m.**, Mondays
63 through Fridays, except for holidays. A request must be made to the owner forty-eight hours in advance for approval of
64 work days or hours other than those stated above. Compliance is required with applicable Noise Ordinances.
65 B. A temporary field office is not required.

- 1 C. The Contractor shall provide and maintain sanitary temporary toilets, located where directed by the owner, in sufficient
2 number required for the force employed. The toilets shall comply with International Building Code Chapter 29 on Plumbing
3 Systems. Toilets shall be self-contained chemical type. The Contractor shall maintain and supply the temporary toilets in a
4 sanitary condition at all times.
5

6 **1.9. ALTERNATES**

- 7 A. Not applicable
8

9 **1.10. STANDARD SPECIFICATIONS**

- 10 A. The City of Madison Standard Publications for Public Works Construction (Edition at publication date of this bid) forms a
11 part of these contract documents as if attached hereto. These Standard Specifications are available from the City Engineer,
12 City Engineering Division, Room 115, City County Building, 210 Martin Luther King Jr. Blvd., Madison, WI 53710 or electroni-
13 cally from the City Website <http://www.cityofmadison.com/business/pw/specs.cfm>. The Contractor shall review these
14 standard specifications prior to preparation of proposal for the work to be done under this contract. Failure to do so does
15 not relieve the Contractor from meeting all requirements.
16

17 **1.11. GENERAL REQUIREMENTS**

- 18 A. All articles in these General Requirements are applicable to all Divisions fully as if repeated within that Division. The Condi-
19 tions of the Contract, General and Supplementary General Conditions, and these General Requirements shall apply to the
20 Contractor engaged in this work. Items listed under Scope of Work are not necessarily all inclusive. These specifications and
21 drawings are intended to include everything necessary to perform the entire work properly. Every item necessarily required
22 might not be specifically mentioned or shown. Unless expressly stated, all systems and equipment shall be complete and
23 operable. All devices and installation methods necessary for a functioning system are considered included in this contract
24 even if a detail is missing or unclear. The words "furnish", "install", "as required", and "provide" shall mean the same in a
25 sense that the Contractor shall furnish and install all the necessary materials, apparatus, and devices to complete the
26 equipment and systems installation herein specified, except such parts as are specifically exempted herein. This also in-
27 cludes that the contractor demolishes and disposes of an existing item if demolition is required to install the new item, even
28 if demolition drawings or specification don't mention demolition of the specific item. If an item is either called for in the
29 specifications or shown on the plans, it shall be considered sufficient for the inclusion of said item in this contract.
30 B. The terms "city", "owner", "city engineer" and "project manager" are used interchangeably. The terms "contractor", "sub-
31 contractor" and "general contractor" are used interchangeably.
32 C. Portions of these specifications are of the abbreviated, simplified type and may include incomplete sentences. Omissions of
33 words or phrases such as "the Contractor shall", "in conformity with", "shall be", "as noted on the drawings", "in accord-
34 ance with details", are intentional. Omitted words or phrases shall be supplied by inference in the same manner, as they
35 are when a note occurs on the drawings. Such terms as approved, reviewed, equal, as directed, , as permitted, acceptable,
36 satisfactory mean by or to the owner.
37 D. If a conflict exists within the Specifications or exists within the Drawings, the Contractor shall furnish the item, system, or
38 workmanship, which is the highest quality, largest, largest quantity or most closely fits the owner's intent. Materials and
39 labor shall be new (unless noted or stated otherwise), first class, and workmanlike, and shall be subject at all times to the
40 owner's inspections, tests and approval from the commencement until the acceptance of the completed work. Whenever a
41 particular manufacturer's product is named, it is intended to establish a level of quality and performance requirements un-
42 less more explicit restrictions are stated to apply. It must be understood that the details and drawings are diagrammatic.
43 The Contractor shall verify all dimensions at the site and be responsible for their accuracy. If items are too large to fit into
44 existing space Contractor shall provide smaller model of same type upon approval by owner at no cost to owner. All sizes as
45 given are minimum except as noted. Prior to bidding, bidder must visit site to become familiar and verify existing condi-
46 tions. Failure to do so does not relieve the bidder from the responsibility to verify existing conditions, to point out errors in
47 drawings or specifications or code violations.
48 E. The area to be set aside for the work under this contract is shown on the drawings, and the Contractor shall confine the
49 construction to the immediate area within the construction limits. The Contractor shall immediately upon entering the site
50 for purpose of beginning work, locate general reference points and take such action as is necessary to prevent their de-
51 struction. The Contractor shall lay out its work and be responsible for all lines, elevations and measurements of the build-
52 ing and other work executed under its Contract. The Contractor must exercise proper precaution to verify dimensions on
53 the drawings before laying out work and will be held responsible for any error resulting from failure to exercise such pre-
54 caution. The Contractor shall verify grades, lines, levels, locations, and dimensions as shown on drawings and report any er-
55 rors or inconsistencies to owner before commencing work. Starting of work by the Contractor shall imply acceptance of ex-
56 isting conditions. Confine all operations, equipment, apparatus and storage of materials, to the immediate area of work to
57 the greatest possible extent. Contractor shall ascertain, observe and comply with all rules and regulations in effect on the
58 project site, including but not limited to parking and traffic regulations, use of walks, security restrictions and hours of al-
59 lowable ingress and egress. Any special traffic control during construction involving lane closures shall be in accordance
60 with the federal standard, Manual of Uniform Traffic Control Devices.
61 F. The work site shall be kept clean and neat at all times. Accumulation of debris shall be avoided and all new equipment and
62 material shall be stored neatly and protected. Failure to comply will result in the contractor responsible for the disorderly
63 conditions to be removed from job site.

- 1 G. Owner will not furnish Watchpersons. The Contractor shall provide such precautionary measures, to include the furnishing
2 of watchpersons if deemed necessary, to protect persons and property from damage or loss where the Contractor's work is
3 involved. The contractor is responsible for securing any material stored on site. In case of theft or damage
4

5 **1.12. CONTRACTOR'S RESPONSIBILITY PRIOR BIDDING**

- 6 A. Bidders shall bring inadequacies, omissions or conflicts to owner's attention at least ten (10) days before the date set for
7 bid submission. Prompt clarification will be supplied to all bidders of record by addendum. Failure to request clarification or
8 interpretation of the drawings and specifications will not relieve the successful Bidder of responsibility. Signing of the con-
9 tract will be considered as implicitly denoting that the Contractor has thorough understanding of the scope of work, existing
10 conditions, and comprehension of the contract documents. Owner is not responsible for verbal instructions.
11 B. During bidding time owner will allow contractors to visit the site to familiarize themselves with the existing conditions and
12 to ask questions for clarification. Failure to attend the scheduled walkthrough implies that the contractor accepts all exist-
13 ing conditions and includes all work to handle existing conditions in his bid price.
14 C. Prior bidding, bidder must obtain information on payment conditions, discounts, shipping charges, and other cost from
15 vendor and/or manufacturer of the products specified.
16

17 **1.13. PAYMENT AND CHANGE ORDERS**

- 18 A. PAYMENTS: will be made based on progress of work. No payments will be made for occurred overhead cost that did not
19 materialize in actual installation. Examples of cost to the contractor that is not part of partial payment are project manage-
20 ment cost, bond cost etc. These cost will be covered proportionally for actual work done on site. No payments shall be
21 made for material that is not installed.
22 B. PAY APPLICATION: The Contractor is responsible for providing the Owner partial payment applications on form AIA Docu-
23 ment G702 Application for Payment and AIA Document G703 Continuation Sheet (with schedule of values). Before the
24 first Application for Payment, the Contractor shall submit to the A/E a schedule of values of the various portions of the
25 Work, including quantities if required by the A/E aggregating the total Contract Sum, divided so as to facilitate payments to
26 Subcontractors. Prepare a schedule of values in such form and supported by such substantiating data as the A/E and Owner
27 may require. Each item in the schedule of values shall include its proper share of overhead and profit. This schedule, when
28 approved by the A/E, shall be used only as a basis for reviewing the Contractor's Applications for Payment.
29 C. **CHANGE ORDERS REQUESTS, CHANGE ORDERS, AND MARKUP: See 01-26-57 Change order Request, and 01-26-63**
30 **Change orders at the end of this section (DIVISION 1 GENERAL REQUIREMENTS, SECTION 01 00 00).**
31
32

33 **1.14. COOPERATION AND RESPONSIBILITIES BETWEEN TRADES**

- 34 A. The Contractor assumes responsibility for all work specified in this contract except for work explicitly noted as be done by
35 owner or a Contractor separately hired by owner. The Contractor coordinate the work of all trades on the project. If plans
36 or specifications designate parts of the work to be done by a specific trade it is meant as a suggestion only. It is up to the
37 trades to agree on division of work and cost. Any work not done by a subcontractor will be the responsibility of the contrac-
38 tor (general contractor, party the owner is in contract with).
39 B. All Contractors shall work in cooperation with the Contractor and with each other, and fit their work into the structure as
40 job conditions may demand. Owner shall make all final decisions as to the right-of-way and run of pipe, ducts, etc., at pre-
41 arranged meetings with responsible representatives of the Contractors involved. Contractor(s) shall coordinate the work
42 with adjacent work with other Contractors prior to installation and shall cooperate with all other trades to facilitate the
43 general progress of the work. The Contractor shall coordinate and schedule the work of all its subcontractors, and shall
44 furnish all information required by them for proper scheduling and execution of the work. In the same manner, the Con-
45 tractor shall coordinate the work with that of owner, and any other Contractor operating in the area, including reasonable
46 adjustments of schedule in order to allow other Contractors or the owner to do their work. Any installed work that is not
47 coordinated and that interferes with other Contractor's work shall be removed or relocated at the Contractor's expense.
48 C. In case it is indicated which trade is responsible for which work, this is meant as a suggestion and it is the Contractor's re-
49 sponsibility in its contracts with subcontractors to clarify who ultimately will do the work. If conflicts arise between the Con-
50 tractor and subcontractor about who is responsible for which work to be done it is the Contractor's responsibility to make
51 sure the work gets done in time even if the dispute between Contractor and subcontractor gets settled later.
52

53 **1.15. SUBMITTALS**

- 54 A. Documents have to be submitted in electronic form (PDF) as described below no later than 3 business days after start work
55 letter is issued. Owner will review, and process shop drawings and other required submittals with reasonable promptness.
56 No delay will be allowed in the progress of the job attributable to Contractor's failure to supply submittals in time. PDF shall
57 be in good quality in electronic original from manufacturer. Scanned PDF are not acceptable.
58 B. The Contractor shall submit an electronic copy of all shop drawings, submittal data consisting of brochures, catalogs, mate-
59 rial lists, wiring diagrams, Material Safety Data Sheets (MSDS), samples, erection drawings, and equipment layouts for re-
60 view by owner. General catalog sheets showing a series of the same device is not acceptable unless the specific model is
61 clearly marked. Each submittal shall be provided together with a transmittal letter or form. Each original transmittal shall
62 be assigned a transmittal number. The number shall begin with the first initial of the name of the Contractor's firm fol-
63 lowed by a serial number. The re-submittals shall indicate the same number with numerical suffix in sequence. Each
64 transmittal shall itemize the enclosures and indicate the distribution of the transmittal and the enclosures. The following in-
65 formation shall be included on all submitted documents: Agency/Location/Address obtained, project number, building

- 1 name, project name. Submittals shall be grouped to include complete submittals of related systems, products, and accesso-
2 ries in a single submittal. Mark dimensions and values in units to match those specified. Include wiring diagrams of electri-
3 cally powered equipment.
- 4 C. Submit all original documents providing information regarding sustainability requirements including but not limited to recy-
5 cled content, VOC, certified wood, disposal certificates and transportation distance. Contractor is required to prove that
6 material and methods used meet all requirements specified elsewhere.
- 7 D. Owner will return the marked and stamped drawings together with transmittal letter or form to Contractor. If re-submittal
8 is required, owner will so note and Contractor shall make another submission for review after correction resolving the re-
9 view comments on the prior submittals. The above procedure shall be repeated until owner favorably reviews the submit-
10 tal. The submittals must be approved before material is ordered and fabrication is authorized.
- 11 E. Owner's favorable review of shop drawings and other submittals shall not relieve the Contractor of responsibility for devia-
12 tions from drawings or specifications, unless the Contractor has in writing called the owner's attention to such deviations at
13 the time of submission, and the owner has acknowledged in writing such deviations; nor shall it relieve the Contractor from
14 responsibility for errors of any sort in such drawings. If deviations, discrepancies, or conflicts between shop drawing submit-
15 tals and the drawings and specifications are discovered either prior to or after the shop drawing submittals are reviewed by
16 owner, the drawings and specifications shall control and shall be followed. The Contractor shall be responsible for and shall
17 check the correctness of all documents including those subcontractors prior to submitting them to owner for review.
- 18 F. The Contractor shall furnish prints of the favorably reviewed final shop drawings, erection drawings, equipment layouts and
19 vendor data to subcontractors and suppliers for the proper coordination of their work. The Contractor shall keep one (1)
20 complete set of the above documents at the job site for the use by owner.
- 21 G. After the completion of the project, and prior to final payment, submit:
- 22 1. One (1) copy of the Waste Manifest Records to the owner, if required in accordance with "Safety and Environment" Re-
23 quirements Article "HAZARDOUS SUBSTANCES".
- 24 2. The original and one (1) copy of all guarantee/warranty documents.
- 25 3. A copy of the O&M manual.

26 27 **1.16. GUARANTEES**

- 28 A. All work, material and equipment shall be guaranteed by the Contractor to be free of faults for at least one year or longer if
29 specified elsewhere. This year begins from the date of final acceptance from owner. The Contractor agrees to return to the
30 project and commence work as directed upon notification by owner and will furnish at his own expense all necessary labor
31 and material to make proper repairs or corrections made necessary by defective material or inferior workmanship fur-
32 nished or performed under this contract. If a subcontractor is not complying, the Contractor shall be held responsible.
- 33 B. All corrections and repairs are to be made no more than 30 days after notification of the Contractor for equipment and
34 material that is not critical to the operation of the building. Critical equipment and material, including but not limited to
35 HVAC, roofing, electrical, elevator, shall be repaired or brought into temporary and safe working condition in less than 7
36 days and temporary alternatives have to be provided by the Contractor if function is critical for use of the facility. If Con-
37 tractor fails to do so the owner reserves the right to perform the work himself or subcontract a different Contractor and
38 charge the Contractor the full cost of the repair and correction and cost of any material, rental fee, labor and equipment to
39 provide temporary relief and protection to enable safe operation of the building.
- 40 C. All equipment and material warranty by the manufacturer that lasts longer than the 1-year warranty by the contractor re-
41 quires sufficient documentation acceptable by the manufacturer to honor the warranty beyond the first year. documents
42 required include manufacturer's warranty certification for this specific material and equipment at the job site, purchase or-
43 ders or any other documents that will be required beyond the first year for the manufacturer to honor warranty.

44 45 **1.17. SCHEDULE OF OPERATIONS**

- 46 A. Within 5 calendar days after the effective date of Start Work Letter, the Contractor shall provide a critical path method
47 (CPM) network diagram and a preliminary construction progress schedule. The diagram shall show the order in which the
48 Contractor proposes to accomplish the work. The CPM shall show interdependence and duration, along with installation
49 man-hours by craft of each activity. Any work element longer than 15 days shall be broken down into component parts. The
50 critical path and float for each activity shall also be shown. The diagram or bar chart shall be neatly lettered and legibly
51 drawn to a time scale. This initial network diagram and all consecutive versions shall include preliminary dates throughout
52 the end of the project.
- 53 B. Install work in phases to accommodate owner's occupancy requirements.
- 54 C. After the initial submittal, the Contractor shall update the schedule monthly by entering actual progress for the period and
55 submit copies as part of the payment request. Contractor shall maintain and provide a 6-week construction schedule that is
56 compatible and complimentary to the general CONSTRUCTION SCHEDULE, and shall include detail of daily tasks over a 6-
57 week period to be updated weekly and communicated and coordinated at the weekly Trade Meetings by the Contractor's
58 field supervisor.
- 59 D. Include tests and other commissioning activities in schedule

60 61 **1.18. DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS**

- 62 A. Drawings indicate approximate locations of the various items. These items are shown approximately to scale and attempt
63 to show how these items should be integrated with building construction. Locate all the various items on-the-job measure-
64 ments in conformance with code and cooperation with other trades. Before locating items, confer with the owner as to de-

- 1 sired location in the various areas. In no case items shall be located by scaling drawings. Contractor must relocate items and
2 bear cost of redoing work or other trades' work necessitated by failure to comply with this requirement.
- 3 B. Demolition drawings, location, circuit numbers, number and type of fixtures, type of mounting and control devices may not
4 be correct. All sizes are approximations and have to be field-verified by contractor. In case of a discrepancy within and
5 between the drawings that would cause and awkward or improper installation the engineer has to be notified for clarification
6 prior to installation. Any work in conflict with the drawings shall be corrected at contractor's expense and at no cost to the
7 owner. Contractor shall determine if scheduled devices fit into space and shall advice if not BEFORE ordering fixtures or de-
8 vices.
- 9 C. Information pertaining to existing conditions that are described in the specifications or appear on the drawings is based on
10 available records. While such data has been collected with reasonable care, there is no expressed or implied guarantee
11 that conditions so indicated are entirely representative of those actually existing. This information is provided to inform the
12 Contractor of known, existing conditions so that due diligence is taken by the Contractor to avoid damage. Where site ob-
13 servation or documents indicate existing underground utilities/services in close proximity (within four feet horizontally
14 and/or four feet vertically) to necessary new construction work, the Contractor shall be responsible to test, probe or oth-
15 erwise determine exact locations so as to prevent damage to such utilities/services.
- 16 D. Standard References such as ANSI, AASHO, AWWA, AISC, Commercial Standards, Federal Specifications, NEMA, UL, and the
17 like incorporated in the requirements by reference shall be those of the latest edition at time of receiving bids, unless oth-
18 erwise specified. The manufacturers, producers and their agents of required materials shall have such specifications availa-
19 ble for reference and are fully familiar with their requirements as pertains to their product or material.
- 20 E. The Contractor shall not take advantage of any apparent error or omission in the plans or specifications, and the owner
21 shall be permitted to make such corrections and interpretations as may be deemed necessary for the fulfillment of the in-
22 tent of the plans and specifications.
- 23 F. In addition to verifying at the site all measurements shown on the Drawings, Contractor shall consult the Drawings and
24 Specifications of related work or existing construction that may in any manner affect the work of this contract. Contractor
25 shall promptly report to the owner, in writing, any errors, omissions, violations, or inconsistencies that may be discovered
26 as a result of such verifications; otherwise, it shall be understood that Contractor accepts all such related data and condi-
27 tions without reservations.
- 28 G. Each trade shall keep one set of plans and specifications on site. In addition construction bulletins, change orders etc. as
29 applicable to the trades shall be on site.
- 30 H. It shall be the responsibility of the Contractor to submit to the owner within ten (10) days after final inspection, one com-
31 plete marked-up set of contract drawings fully illustrating all revisions made by all the crafts in the course of the work. This
32 shall include all field changes, adjustments, variances, substitutions and deletions, whether covered by Change Order or
33 not. Underground utility installations must be located precisely as constructed on the marked-up drawings. Contractor shall
34 markup changes for as-built drawings on a daily base.
- 35 I. Layout of existing piping, conduits, and locations of equipment are shown as exactly as could be determined during design
36 of the facilities; but their accuracy, particularly when such layouts and drawings are schematic, cannot be guaranteed. Con-
37 tractor shall check all Specifications including the Drawings for possible interference with electrical, mechanical, and struc-
38 tural details, as well as interference with existing building or equipment, and shall notify the owner of the interference for
39 resolution of the interference before commencing work. Any completed work that interferes shall be corrected by Contrac-
40 tor at Contractor expense so that the original design can be followed.
- 41 J. Electronic design files may be provided by the owner at its digression as they are needed for the contractor to perform the
42 work. Contractor shall use electronic design files on their own risk and assume all liability. Electronic documents are not
43 contract documents and significant discrepancies may exist between these electronic files and contract documents and ac-
44 tual site conditions.
- 45 K. Contractor shall provide list with all equipment installed. This list shall contain, but not limited to, type, make and special
46 product key and number. For grant purposes the contractor may have to provide detailed information about equipment in-
47 stalled and labor provided to third party institutions, such as Focus on Energy.
- 48 L. Using datum, the lot lines and present levels have been established as shown on the drawings. Other grades, lines, levels
49 and benchmarks, shall be established and maintained by the Contractor, who shall be responsible for them. As work pro-
50 gresses, the Contractor shall lay out on forms and floor, the locations of all partitions, walls and fix column centerlines as a
51 guide to all trades. The Contractor shall make provision to preserve property line stakes, benchmarks, or datum point. If
52 any are lost, displaced or disturbed through neglect of any Contractor, Contractor's agents or employees, the Contractor re-
53 sponsible shall pay the cost of restoration.

54 55 **1.19. QUALITY ASSURANCE**

- 56 A. Any installed material not meeting the specification requirements must be replaced with material that meets these specifi-
57 cations without additional cost to owner.
- 58 B. All products and materials used are to be new, undamaged, clean and in good condition. Existing products and materials
59 are not to be reused unless specifically indicated.
- 60 C. Where equipment or accessories are used which differ in arrangement, configuration, dimensions, ratings, or engineering
61 parameters from those indicated on the contract documents, the Contractor is responsible for all costs involved in integrat-
62 ing the equipment or accessories into the system and for obtaining the performance from the system into which these
63 items are placed. This may include changes found necessary during the testing, adjusting, and balancing phase of the pro-
64 ject.

- 1 D. Contractor shall assume the responsibility for the protection of all finished construction under the Contract and shall repair
2 and restore any and all damage of finished work to its original state. Wheeling of any loads over any type of floor, either
3 with or without plank protection, will be permitted only in rubber-tired wheelbarrows, buggies, trucks or dollies. Where
4 structural concrete is also the finished surface, care must be taken to avoid marking or damaging those surfaces. All struc-
5 tures and equipment shall be constructed, installed and operated with guards, controls and other devices in place.
- 6 E. Contractor shall obtain complete data at the site and inspect surfaces that are to receive the Work before proceeding with
7 fabricating, assembling, fitting or erecting any work under this contract. Contractor shall notify owner in writing in case of
8 discrepancies between existing work and drawings, and of any defects in such surfaces that are to receive the Contractor's
9 work. Owner will evaluate the notice and direct what remedial action will be taken.
- 10 F. Starting of work implies acceptance of existing work or the work of others. Removal and replacement of work applied to
11 defective surfaces, in order to correct defects, shall be done at the expense of the Contractor who applied work to defec-
12 tive surfaces.
- 13 G. For outdoor work the Contractor shall:
- 14 1. Provide, erect and maintain all required planking, barricades, guard rails, temporary walkways, etc., of sufficient size
15 and strength necessary for protection of stored material and equipment; paved surfaces, walks, curbs, gutters and
16 drives; streets adjacent to or within project area; adjoining property and all project work to prevent accidents to the
17 public and the workmen at the job site.
 - 18 2. Notify adjacent property owners if their property interferes with the work so that arrangements for proper protection
19 can be made.
 - 20 3. Provide protection against rain, snow, wind, ice, storms, or heat to maintain all work, materials, apparatus, and fixtures,
21 incorporated in the work or stored on the site, free from injury or damage. At the end of the day's work, cover all new
22 work likely to be damaged. Remove snow and ice as necessary for safety and proper execution of the work.
 - 23 4. Protect the building and foundations from damage at all times from rain, ground water and back up from drains or
24 sewers. Provide all equipment and enclosures as necessary to provide this protection.
 - 25 5. Damaged property shall be repaired or replaced in order to return it to its original condition. Damaged lawns shall be
26 re-seeded.
 - 27 6. Take all necessary precautions to protect owner 's property as well as adjacent property, including trees, shrubs, build-
28 ings, sanitary and storm sewers, water piping, gas piping, electric conduit or cable, etc., from any and all damage which
29 may result due to work on this project.
 - 30 7. Repair work outside of property line in accordance with the requirements of the authority having jurisdiction.
 - 31 8. Repair any work, damaged by failure to provide proper and adequate protection, to its original state to the satisfaction
32 of owner or remove and replace with new work at the Contractor's expense.
 - 33 9. Protect trees indicated on the drawings to remain and trees in locations that would not interfere with new construc-
34 tion, from all damage. Do not injure trunks, branches, or roots of trees that are to remain. Do cutting and trimming on-
35 ly as approved and as directed by owner. The value of trees destroyed or damaged will be charged against the account
36 of the Contractor responsible for the damage in an amount equal to the expense of replacing the trees with those of
37 similar kind and size.
- 38 H. The contractor shall be fully responsible for inspecting the work of its suppliers, and subcontractors to assure that the work
39 complies with the standards for materials and workmanship required by the contract documents. The Contractor shall:
- 40 1. Monitor quality control over subcontractors, suppliers, manufacturers, products, services, site conditions, and work-
41 manship, to produce work of the quality specified in the contract documents.
 - 42 2. Comply fully with manufacturer's instructions, including each step in sequence.
 - 43 3. Request clarification from owner before proceeding with work when manufacturers' instructions or reference stand-
44 ards conflict with Subcontract Documents.
 - 45 4. Comply with specified standards as a minimum quality for the work except when more stringent tolerances, codes, or
46 manufactures instructions require more precise workmanship.
 - 47 5. Ensure that work is performed by persons specializing in the specific trade and class of work required, and qualified to
48 produce workmanship of specified quality.
 - 49 6. Secure products in place with positive anchorage devices designed and sized to withstand seismic, static and dynamic
50 loading, vibration, physical distortion or disfigurement.
- 51 I. If reference standards or manufacturers' instructions contain provisions that would alter or are at variance with relation-
52 ships between the parties to the contract set forth in the contract Documents, the provisions in the contract Documents
53 shall take precedence.
- 54 J. When required by individual Specification sections, Contractor shall provide the following services from a manufacturer's
55 representative:
- 56 1. Review of Specifications and design and concurrence or suggestions for modification.
 - 57 2. Site observation of conditions of use and substrate.
 - 58 3. Observation of the installation work in progress and on completion.
 - 59 4. Start up, testing, and adjustment of equipment.
 - 60 5. Instruction to the owner in operation and maintenance.
 - 61 6. Provide written signed report by manufacturer's representative documenting services provided and any comments or
62 recommendations.
- 63 K. Inspection or testing performed by the owner shall not relieve the Contractor from responsibility for performing his own
64 quality control and for complying with the requirements of the contract Documents. Owner will not be responsible for the
65 Contractor's failure to carry out work in accordance with the contract Documents.

1
2 **1.20. CODES AND PERMITS**

- 3 A. Applicable provisions of Public Law, the Constitution and Laws and Statutes of the State of Wisconsin and the codes and
4 regulations of governmental departments are hereby referred to and made a part of this contract and all work performed
5 shall be in accordance with such laws, regulations and the latest edition or supplement or amendment thereto in effect at
6 the time of submittal of bid shall be considered to be the issue in effect (unless shown otherwise) of all applicable codes in-
7 cluding, but not limited to:
8 1. Wisconsin Building Code
9 2. Wisconsin Electrical Code
10 3. Wisconsin Mechanical Code
11 4. Wisconsin Plumbing Code
12 5. Wisconsin Energy Code
13 6. Wisconsin Fire Code
14 7. NFPA 70 National Electrical Code
15 8. General Services Administration 41 CFR Part 101-19
16 9. Americans with Disabilities Act (ADA)
17 10. Energy Conservation Performance Standards,
18 11. Local Codes
19 12. Occupational Safety and Health Act (OSHA)
20 13. Occupational Safety and Health Standards, Department of Labor
21 14. Safety and Health Regulations for Construction, Department of Labor
22 15. Wisconsin Fire Code
23 16. National Electrical Safety Code, ANSI C2
24 17. Environmental Protection Agency regulations
25 18. Clean Air Act
26 19. Clean Water Act
27 20. Resource Conservation and Recovery Act
28 21. Toxic substances Control Act
29 22. Wisconsin Department of Health and Family Services
30 23. State and Regional Water Quality Control Boards
31 24. County and Municipal ordinances
32 B. In case of conflict or overlap of the above references, the most stringent provision shall apply.
33 C. The newest version of the a code or standard shall apply even if an older version is adopted by the Jurisdiction Having Au-
34 thority.
35 D. If necessary, file and maintain Notification of Demolition and/or Renovation and Application for Permit Exemption (WDNR
36 Form 4500-113) in accordance with the Wisconsin Administrative Code Chapter NR447.
37 E. Contractor is expected to know or to ascertain, in general and in detail, the requirements of all codes and ordinances, and
38 all rulings and interpretations of code requirements being made by all authorities having jurisdiction over the work per-
39 formed by them, applicable to the construction and operation of systems covered by this contract. Where codes or stand-
40 ard specifications other than those listed in this paragraph are referred to in the different Divisions of these specifications, it
41 is understood that they apply as fully as if cited here. Where differences exist between codes affecting this work, the code
42 affording the greatest protection to the owner shall govern.
43 F. All cost for items and procedures necessary to satisfy requirements of all applicable codes, ordinances and authorities,
44 whether or not these are specifically covered by drawings or specifications. All cases of serious conflict or omission between
45 the drawings, specifications, and codes shall be brought to the owner's attention as herein before specified. The Contractor
46 shall carry out work and complete construction as required by applicable codes and ordinances and in such a manner as to
47 obtain approval of all authorities whose approval is required.
48 G. Contractor is responsible for obtaining permits at its own cost including expenses for supporting documents. Deliver origi-
49 nal permits to the owner before work starts. Apply for, arrange and pay for all required installation inspections required.
50 Deliver originals of these certificates to the owner. Include copies of the certificates in the Operating and Maintenance In-
51 structions. Contractor shall arrange all required inspections and correct all deficiencies at no cost to owner.
52 H. The Contractor must maintain all licenses required for the work performed and required by authorities. The Contractor
53 must submit proof of holding the license or certificate upon request. If a Contractor loses a license for whatever reason he
54 must inform the owner immediately after learning about that himself.
55 I. PERMIT TO PENETRATE GROUND OR EXISTING SURFACES OF OWNER PROPERTY:
56 1. Prior to any penetration of the ground or existing concrete surfaces (including the use of stakes or poles) in excess of
57 1.5", the Subcontractor shall obtain from the Project Representative a Permit to penetrate or Excavate Existing Surface
58 of owner property and shall adhere to the conditions of the permit during such work. The Permit and all conditions in it
59 shall be considered part of these specifications and shall be included in the contractor's bid amount.
60 2. In areas where a Permit to penetrate or excavate existing surfaces of owner property is not required, contractors shall
61 verify by safe means, prior to drilling, that no utilities or services are enclosed within the area to be drilled.
62 J. FIRE SAFETY PERMIT:
63 1. All operations with open flames or that cause sparks or is near gas lines or near combustible storage containers require
64 a daily Fire Safety Permit issued by the Project Representative. Contractor shall not commence such work until the
65 permit is issued. Activities requiring a Permit include, but are not limited to, electric arc and gas welding and flame cut-

1 ting, other open flame operations, tar kettles, powder activated tools and excavations. Fire watch personnel shall be
2 provided the contractor in sufficient number to continuously monitor all locations where work is conducting requiring a
3 fire permit. The fire watch personnel shall remain on the job at least thirty minutes after such operations are complet-
4 ed. Fire safety personnel may be installers or welders.

5 2. Noncombustible shields or covers shall be provided by the contractor on tables, floors, walls, around the workstation,
6 and over equipment to protect building structures, equipment and personnel from sparks and fragments of hot metal.
7 Contractor shall also take these precautions to protect against sparks and hot metallic oxides generated by grinding,
8 drilling or sawing operations.

9 K. AIR EMISSIONS PERMITS AND NOTIFICATIONS:

- 10 1. For all projects that involve removal of regulated asbestos containing materials, the contractor shall complete the re-
11 quired asbestos removal forms and notify the authorities at least 10 working days in advance of the activity.
12 2. For any operations required to obtain an Authority to Construct or Permit to Operate from the authorities, the contrac-
13 tor shall provide in advance to the Project Manager the information needed for the application. Authorities may take
14 more than 40 working days to process the application and issue the Authority to Construct or Permit to Operate; the
15 contractor shall include this time in his Schedule of Operations; OWNER will grant no extra cost under this contract for
16 this wait period.
17

18 **1.21. ENVIRONMENT, SAFETY AND HEALTH (EHS)**

- 19 A. The owner can request additional safety or environmental protection measures at any time. If contractor does not follow
20 safety or environmental protection requirements, the owner can hire a different contractor or self-perform to ensure com-
21 pliance and charge the original contractor for the cost.
- 22 B. Contractor shall provide all labor, materials, equipment, services and supervision required to maintain work sites that meet
23 the environment, safety and health (ES&H) requirements of all applicable federal, state, and local regulations and protect
24 the environment and the safety and health of its employees, the employees of its lower tier subcontractors, owner em-
25 ployees and the general public.
- 26 C. The contractor shall provide a qualified onsite EHS Representative with the authority to enforce all of the safety require-
27 ments and implement the contractor's Injury and Illness Prevention Program and Hazard Abatement Plan. The contractor
28 shall remove and replace its Health and Safety Representative at the request of the owner, if the Safety Representative is
29 unsuccessful in enforcing the EHS requirements. The contractor's EHS representative shall conduct safety inspections of the
30 project operations, materials, and equipment frequently throughout the day to ensure that all safety deficiencies are identi-
31 fied and corrected. The owner reserves the right to enforce measures if the contractor's onsite EHS representative does not
32 enforce all requirements. Inspection findings and corrective actions taken shall be documented, and the record shall be
33 kept on the construction work site and be made available to owner upon request. If safety deficiencies are found, owner
34 will issue a Safety Deficiency Notice to the contractor. Upon receipt of a written Safety Deficiency Notice from the Owner,
35 the contractor shall take appropriate action to correct the deficiency and discontinue the hazardous activity until the hazard
36 is abated. Failure to correct or eliminate violation(s) within the period specified might result in the order to stop all or any
37 part of the work. The contractor shall submit to the owner a written response to the Safety Deficiency Notice describing
38 what corrective action it has taken, the date such corrective action was completed and actions that it will take to prevent
39 future recurrence of the same incident.
- 40 D. Provide protection for workmen, public, adjacent construction and occupants of existing building(s). Personal Protective
41 Equipment (PPE) such as hard hats, ear plugs and dust masks, shall be provided to all employees and use shall be enforced
42 by the onsite EHS Representative. PPE also shall be provided to site visitors near the main entrances to the jobsite. PPE shall
43 be provided in sufficient numbers to outfit typical number of visitors (i.e. designers, inspectors, shipment workers)
- 44 E. WORK SITE SAFETY ORIENTATION: Each employee shall receive initial EH&S orientation prior to performing any work on the
45 project. The contractor shall maintain on the work site a detailed outline of the orientation and a signed and dated roster of
46 all employees who have completed the project EHS indoctrination. Make documentation available to owner on request.
47 The orientation shall, at a minimum, cover the following points:
48 1. Employee rights and responsibilities.
49 2. Construction contractor responsibilities.
50 3. Alcohol and drug abuse policy
51 4. Contractor's disciplinary procedures.
52 5. First aid and medical facilities.
53 6. Site and project specific hazards.
54 7. Hazard recognition and procedures for reporting or correcting unsafe conditions or practices.
55 8. Procedures for reporting accidents and incidents.
56 9. Fire fighting and other emergency procedures to include local warning and evacuation systems.
57 10. Hazard Communication Program.
58 11. Access to employee exposure monitoring data and medical records.
59 12. Protection of the environment, including air, water, and storm drains from construction pollutants.
60 13. Location of and access to reviewed project Illness and Injury Prevention Program, Hazard Analysis and Hazard Abate-
61 ment Plan
62 14. Location and contents of required postings
- 63 F. A comprehensive EH&S program shall be established including but not be limited to:
64 1. Confined Space Entry

- 1 2. Site specific Emergency Response, First Aid, & Medical Services. Identify employees with CPR/First Aid certification
- 2 available at the work site.
- 3 3. Fire Protection and Prevention
- 4 4. Hazard Communications
- 5 5. Hazardous Waste Operations
- 6 6. Hazardous Work Permits
- 7 7. Toxic and Hazardous substances
- 8 8. Inspection, Maintenance, and Certification of Heavy Equipment, Cranes, and Motor Vehicles
- 9 9. Lock Out/Tag Out (LOTO) Subcontractors are required to include LOTO
- 10 10. Personal Protective and Life Saving Equipment
- 11 11. Radiation Protection
- 12 12. Construction Safety Training
- 13 13. Control of silica dust released during demolition or drilling of concrete or released from work with other materials that
- 14 contain silica.
- 15 G. A comprehensive activity hazard analysis and hazard abatement plan shall be established including but not be limited to:
- 16 1. Description of work phase or activity
- 17 2. Identification of potential hazards associated with the activity
- 18 3. A list of the contractor's planned controls to mitigate the identified hazards
- 19 4. Name of the contractor's employee responsible for inspecting the activity and ensuring that all proposed safety
- 20 measures are followed
- 21 5. Construction activities for which an Activity Hazard Analysis and Hazard Abatement Plan may be required include, but
- 22 are not limited to:
- 23 6. Hoisting and handling of materials
- 24 7. Excavations
- 25 8. Trenching and drilling
- 26 9. Concrete placement and false work
- 27 10. Welding
- 28 11. Steel erection
- 29 12. Work performed six feet or higher above ground
- 30 13. Electrical work
- 31 14. Demolition
- 32 15. Work in confined spaces
- 33 16. Work that causes the release of silica such as demolition or drilling of concrete or work with materials that contain sili-
- 34 ca.
- 35 17. Work with epoxy coatings
- 36 18. Work with or around hazardous materials
- 37 19. Work on hilly terrain
- 38 20. Use and handling of flammable materials
- 39 21. The owner must favorably review the Activity Hazard analysis and Hazard Abatement Plan before work can start on that
- 40 activity.
- 41 H. ELECTRICAL WORK:
- 42 1. Energized electrical work within panels and equipment is not allowed.
- 43 2. Workers shall be qualified to perform electrical tasks in accordance with OSHA 29 CFR 1910 and 1926 requirements.
- 44 3. Work practices must be compliant with NFPA 70E, newest edition – Standard for Electrical Safety in the Workplace.
- 45 I. Rubbish, debris and scrap shall not be thrown through any window or other opening, or dropped from any great height; it
- 46 shall be conducted to the ground, to waiting truck(s) or removable container(s) by means of approved chutes or other
- 47 means of controlled conveyance.
- 48 J. Form and scrap lumber shall have all nails withdrawn or bent over; shall be neatly stacked, placed in trash bins, or removed
- 49 from the premises.
- 50 K. Take all necessary precautions while dismantling piping containing gas, gasoline, oil or other explosive or toxic fluids or
- 51 gases. Purge lines and contain materials in accordance with all applicable regulations. Store such piping outdoors until
- 52 fumes are removed. Verify that all gas and electrical utilities have been abandoned or disconnected and associated hazards
- 53 mitigated, prior to beginning any demolition.
- 54 L. All material classified by authorities to be a material that needs special treatment must be recycled, reused or disposed of
- 55 by a special contractor that holds a valid license to work with such material. If hazardous materials are not anticipated, but
- 56 encountered, terminate operations and contact owner immediately.
- 57 M. CONTROL OF CRYSTALLINE SILICA DUST: The subcontractor shall provide all necessary control measures at the work site to
- 58 keep worker exposure to crystalline silica dust within the OSHA Established Permissible Exposure Limits (PEL's). Dust control
- 59 measures may require spraying of water or engineering controls at the dust generating points. It also may include the use
- 60 of respirators, industrial grade HEPA vacuums, and HEPA filtered locally exhausted tools. Construction operations known to
- 61 cause the release of silica dusts include, but are not limited to:
- 62 1. Chipping, sawing, grinding, hammering, and drilling of concrete, rock, or brick.
- 63 2. Work with cementitious materials such as grout, mortar, stucco, gunnite, etc.
- 64 3. Dry sweeping of dust originating from concrete or rock
- 65 N. CONSTRUCTION ACTIVITY POLLUTION PREVENTION:

- 1 1. Follow Requirements in Storm Water Pollution Prevention Plan (SWPPP) and Erosion and Sedimentation Control (ESC)
- 2 Plan
- 3 2. Stabilize any relocated and moved soil with fast growing grasses and place mulch (hay, woodchips, straw) on it to cover
- 4 and hold soil
- 5 3. Divert surface runoff from distributed areas into sediment basin or sediment traps with a mound of stabilized soil
- 6 4. Construct posts with filter fabric media to remove sediment from stormwater leaving the site.
- 7 5. Follow requirements in site development plan and don't disturb areas beyond the marked area.

8
9 O. INDOOR AIR QUALITY:

- 10 1. Not Applicable.

11
12 P. FIRE PROTECTION AND PREVENTION:

- 13 1. The contractor shall develop and maintain an effective fire protection and prevention program at the job site through
- 14 all phases of demolition, alteration, repair, and construction work. Contractor shall ensure the accessibility and availa-
- 15 bility of fire protection and suppression equipment.
- 16 2. Smoking is be prohibited everywhere on the job site – no exceptions. Signs shall be posted. In visible locations.
- 17 3. No burning of rubbish or debris will be allowed at the site. Combustible waste shall be removed immediately or stored
- 18 in fire resistive containers until disposed of in an approved manner.
- 19 4. The Contractor shall provide and maintain in working order during the entire construction period, a minimum of three
- 20 (3) fire extinguishers on each floor level, including basement of the building, and one (1) in temporary office. Exting-
- 21uishers shall be nonfreezing type such as A-B-C rated dry chemical, of not less than 10-pound capacity each. In addi-
- 22 tion, any subcontractor who maintains an enclosed shed on the site shall provide and maintain, in an accessible loca-
- 23 tion, one or more similar nonfreezing type fire extinguisher in each enclosed shed.

24
25 Q. ACCIDENTS AND SPILLS:

- 26 1. The contractor shall immediately notify the owner of any accidents, injuries or occupational illnesses that occur on the
- 27 project, regardless of the employer of the involved personnel or the owner of the involved materials or equipment. For
- 28 OSHA recordable injuries, the subcontractor shall also furnish a copy of the OSHA Form 301(or equivalent) to the Pro-
- 29 ject Representative within five days of the injury.
- 30 2. In the event a job site accident occurs, the contractor shall immediately implement controls and restrictions on the ac-
- 31 cident site to ensure the site remains undisturbed until released in writing by the owner to resume work. The contrac-
- 32 tor shall provide accident investigation follow-up and shall support Owner's accident investigation and reporting proto-
- 33 col.
- 34 3. The contractor shall promptly report to owner any spill, deposit, leak, drainage, debris, residue, spoil, residual, and/or
- 35 by-product, whether its presence at the jobsite is occasioned by accident, inadvertence, intent, discarding, or aban-
- 36 donment by the Subcontractor or its lower tier subcontractors. This reporting requirement applies to petroleum prod-
- 37 ucts, oil, lubricants, chemical substances, waste materials, and waste substances, which are in such quantities as to con-
- 38 stitute a hazardous substance or hazardous waste. All such occurrences of any quantity involving paints, solvents, thin-
- 39 ners, degreasers, PCBs, halogenated hydrocarbons, volatile organic compounds, and/or asbestos shall be deemed a re-
- 40 portable event. These identification and reporting requirements shall be the responsibility of the contractor for both its
- 41 own work forces as well as for any sub tier contractor, material man or supplier performing work on site for the con-
- 42 tractor. All removal, cleanup, and associated costs, which result from contractor or lower tier subcontractor, material
- 43 man, or supplier presence at the jobsite, shall be at the contractor's sole expense.

44 R. WASTE MANAGEMENT:

- 45 1. Recycle all recyclable material. This includes any material for which there is a recycling facility in Wisconsin.
- 46 2. Separate all waste material in plastic, metal, paper, acoustical tile, brick, concrete, clean wood, glass, gypsum drywall,
- 47 carpet and insulation and provide designated on-site collection areas.
- 48 3. Keep track of volume and weight of each material and track if it was recycled, reused, donated or disposed otherwise.
- 49 4. It is permissible to separate waste off-site by specialized recycling contractor. This contractor needs to be provide
- 50 proof of recycling and needs to be WASTECAP certified as "Accredited Professional in Construction and Demolition
- 51 Debris Recycling".
- 52 5. Prior to demolition or construction activities, the General Contractor, with input of all contractors and their subcon-
- 53 tractors, shall develop and submit a Waste Management Plan to owner. Priority is given to reuse, followed by recy-
- 54 cling followed by disposal including proper land filling or incineration. Disposal only will be acceptable if other meth-
- 55 ods are not commercially available. The Waste Management Plan includes but is not limited to the following:
- 56 a. A list of each material proposed to be salvaged, reused, or recycled, Materials to be included, at a minimum, are
- 57 the following:
- 58 i. Concrete: Clean concrete, concrete with rebar, asphalt concrete.
- 59 ii. Metals: Steel, iron, galvanized sheet steel, stainless steel, aluminum, copper, zinc, lead, brass or bronze,
- 60 including banding, ductwork, framing, roofing and siding, flashing, piping and rebar.
- 61 iii. Clean Fill: Earth, rocks, and gravel.
- 62 iv. Wood: Clean dimensional wood, wood pallets, engineered wood products including plywood, parti-
- 63 cleboard, I joist.
- 64 v. Biodegradable landscaping materials.
- 65 vi. Cardboard, paper, packaging.

- 1 vii. Masonry: Brick, ceramic tile, CMU.
- 2 viii. Roofing: Clay or concrete tiles, asphalt shingles.
- 3 ix. Gypsum board.
- 4 x. Acoustic ceiling panels.
- 5 xi. Carpet and pad.
- 6 xii. Paint.
- 7 xiii. Insulation.
- 8 xiv. Plastics: ABS, PVC
- 9 xv. Beverage containers
- 10 xvi. Cardboard.
- 11 xvii. Concrete
- 12 xviii. Brick and concrete masonry units (CMU).
- 13 xix. Metals from banding, stud trim, ductwork, piping, rebar, roofing, other trim, steel, iron, galvanized sheet
- 14 steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
- 15 xx. Gypsum wallboard.
- 16 xxi. Clean dimensional wood
- 17 xxii. Wood doors
- 18 xxiii. Acoustical ceiling tiles/panels
- 19 xxiv. Glass
- 20 b. Separation and Materials Handling Procedures: How waste materials (as identified above), will be separated,
- 21 cleaned (if necessary) and protected from contamination.
- 22 c. Waste Material Estimating Sheet (Appendix A at the end of this Section)
- 23 d. Proposed Alternatives to Land filling: List each material planned to be salvaged or recycled, quantities, and pro-
- 24 posed destination.
- 25 6. The contractor shall provide separation, bins for temporary onsite storage, handling, transportation, recycling, sal-
- 26 vage, and land filling for all demolition and waste materials and keep recycling and waste bins areas neat, clean and
- 27 clearly marked in order to avoid contamination or mixing materials and maintain logs onsite for each load of materials
- 28 removed from site.
- 29 7. During the progress of the work, the General Contractor shall report to owner the quantity of each material recycled,
- 30 reused, or salvaged, and the receiving party. All contractors shall maintain a record of weight tickets, manifests, re-
- 31 ceipts, and invoices for review by owner on request.
- 32 8. At the completion of the project the General Contractor shall submit a final summary of the progress reports, includ-
- 33 ing the percentage of recycled waste (weight or volume) to the quantity of waste that would have been otherwise
- 34 land filled.
- 35 9. Contractor is to provide the following documents upon request for payment:
- 36 a. Waste Materials Estimating Sheet (Appendix A at the end of this Section)
- 37 b. Landfill Log (Appendix B at the end of this Section)
- 38 c. Waste Diversion Log (Appendix C at the end of this Section)
- 39 d. Legible copies of manifests, weight tickets, and receipts. Manifests shall be from recycling and/or disposal site
- 40 operators that can legally accept the materials for the purpose of reuse, recycling or disposal. These documents
- 41 shall include the contract number and the job site name.
- 42 10. Examples of documents include, but are not limited to:
- 43 a. Cover sheet for hazardous materials recycling contract
- 44 b. Vendor "Pickup Request"
- 45 c. Vendor "Certificate of Recycling and/or Disposal"
- 46 d. Vendor invoice
- 47 e. Maintain at the Project site Landfill Logs and Waste Diversion Logs for each load of materials removed from site.
- 48 f. Discuss Waste management plans and implementation during all construction-related meetings.
- 49 g. Immediately Inform the owner if hazardous materials are encountered or suspected, and stop work in the sus-
- 50 pect area. Do not proceed with work in the suspect area until approved by the owner.
- 51 11. The following resources are provided for information only, to aid the Contractor in managing the construction waste:
- 52 a. The Wisconsin DNR, Bureau of Waste Management <http://www.dnr.state.wi.us/org/aw/wm/>
- 53 b. The UW-Extension's Solid and Hazardous Waste Education Center <http://www1.uwex.edu/ces/shwec/>
- 54 c. WasteCap Wisconsin, Inc. <http://www.wastecapwi.org> or telephone: 414-961-1100 or 608-245-1100
- 55 12. The contractor shall provide summaries of type and amount of material recycled, reused or disposed of. Those sum-
- 56 maries shall include enough information and detail to satisfy requirements by external auditors. At a minimum the
- 57 documentation needs to meet the current LEED requirements and requirements set by the EPA and federal govern-
- 58 ment for federally funded projects. These requirements may or may not be mentioned specifically in this contract and
- 59 the contractor is required to learn about specifics and to add documentation as required by such third party auditors.
- 60

1.22. STAIRS, SCAFFOLDS, HOISTS, ELEVATORS OR CRANES

- 62 A. The Contractor shall furnish and maintain equipment such as temporary stairs, fixed ladders, ramps, chutes, runways and
- 63 the like as required for proper execution of work by all trades, and shall remove them on completion of the work. The Con-
- 64 tractor shall erect permanent stair framing as soon as possible. Provide stairs with temporary treads, handrails, and shaft
- 65 protection. Contractors requiring scaffolds shall make arrangements with the Contractor, or shall provide their own and

- 1 remove them on completion of the work. The Contractor shall underlay its interior scaffolds with planking to prevent up-
2 rights from resting directly on the floor construction.
- 3 B. Contractor shall provide and pay for its own hoist/crane or other apparatus necessary for unloading/setting or moving their
4 equipment and materials. Installation and removal of equipment for this activity must be accounted for in the Project
5 Schedule. Equipment and operations for this activity shall comply with applicable Department of Commerce and OSHA re-
6 quirements. No material hoist may be used to transport personnel unless it meets Department of Commerce and OSHA re-
7 quirements for that purpose.
- 8 C. Existing elevators may be used on a limited basis with the owner's permission and agreement. The Contractor will pay
9 costs of warranty extensions and additional service work required. Appropriate protection must be provided by the using
10 Contractor and that Contractor shall be responsible for any structural, mechanical or finish damage to the elevator and its
11 parts and to adjoining building finishes and components.

12
13 **1.23. SAFEGUARDS - EXISTING EQUIPMENT, UNDERGROUND UTILITIES AND ARTIFACTS**

- 14 A. Existing utilities, including those listed as abandoned, shall not be moved or otherwise disturbed without written verifica-
15 tion by the owner that the utility is abandoned.
- 16 B. When altering existing facilities, the Contractor shall take every precaution to preserve and protect existing facilities, both
17 those to be altered and those to remain unaltered that are within the limits of the work.
- 18 C. The Contractor shall notify the owner of structural members, piping, conduit, or equipment not indicated for removal that
19 may cause interference with the work. Work shall not proceed in the affected area until instructions have been issued. Do
20 not drill or penetrate existing structures without prior permission. The removal of existing work shall be by methods that
21 will not jeopardize the integrity of structures or systems that are to remain.
- 22 D. Existing utilities, including but not limited to roof drainage systems, underground cables, ducts, roadways, manholes,
23 building fire alarm, public address or telecommunications wiring shall not be moved or otherwise disturbed, nor electrical
24 circuits or switches operated or taken in or out of service, without prior consent of the owner. Contractor shall compen-
25 sate loss to the owner resulting from damage to utilities, facilities and other owner or public items damaged.
- 26 E. Take measures necessary to safeguard all existing work and facilities that are inside and outside the limits of the work or
27 items that are within the construction limits but are intended to remain. Report any damage to the owner immediately.
28 Correct and pay for all damages.
- 29 F. If bones or artifacts are encountered during digging, the owner requires that the Contractor stop work within a 50-foot
30 radius of the find and immediately notify the owner. Work may continue only with approval from the owner.

31
32 **1.24. OPERATION AND MAINTENANCE DATA**

- 33 A. All OM documents are to be submitted as electronic copy for review at the time the respective equipment is delivered. No
34 hardcopy shall be provided until the OM manuals are approved.
- 35 B. Submit data bound in 8-1/2 x 11 inch (A4) text pages, Use three D side rings if necessary and binders with durable plastic
36 covers. Submit all documents in electronic form as well as in hardcopy. Prepare binder cover with printed title
37 "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project and subject matter of binder when multiple binders are
38 required.
- 39 C. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab
40 titling clearly printed under reinforced laminated plastic tabs.
- 41 D. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified, typed on 20-
42 pound white paper, in three parts as follows:
- 43 E. Part 1: Directory, listing names, addresses, and telephone numbers of Architect/Engineer, Contractor, subcontractors, and
44 major equipment suppliers.
- 45 F. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each
46 category, identify names, addresses, and telephone numbers of subcontractors and suppliers. Identify the following:
- 47 1. Summary list of maintenance items indicating frequency and type of maintenance required for all systems covered in
48 this contract.
- 49 2. List of components.
- 50 3. A description of recommended replacement parts and materials, which the owner should stock.
- 51 4. Parts list for each component.
- 52 5. A summary of equipment vendors, or location where replacement parts can be purchased.
- 53 6. Copies of all approved submittals.
- 54 7. Operating instructions.
- 55 8. Maintenance instructions for components systems, Preventive maintenance recommendations.
- 56 9. Maintenance instructions for finishes, including recommended cleaning methods and materials, and special precau-
57 tions identifying detrimental agents.
- 58 G. Part 3: Project documents and certificates, including the following:
- 59 1. Product data.
- 60 2. Certificates.
- 61 3. Photocopies of warranties.
- 62 4. Name, address, and telephone number of the person or office to contact for service during the warranty period.
- 63 5. Name, address, and telephone number of the person or service organization to be contacted for service after the
64 warranty period.

- 1 H. Submit all O&M manuals in original electronic form (PDF). Scanned copies are not acceptable. PDF need to be of high qual-
2 ity and searchable.
- 3 I. Submit 1 draft copy of completed volumes 15 [fifteen] days after approval of applicable submittal or receipt of the prod-
4 uct. Revise content of all document sets as required prior to final submission. Submit 2 [two] sets of revised final volumes,
5 within 10 [ten] days after final inspection.

6
7 **1.25. ACCESS PANELS AND DOORS**

- 8 A. Not Applicable.

9
10 **1.26. LOOSE AND DETACHABLE PARTS**

- 11 A. Contractor shall retain all loose and small detachable parts of apparatus and equipment furnished under this Contract,
12 until completion of the work and shall turn them over to the owner to receive them.
- 13 B. Furnish one can of touch-up paint for each different color factory finish furnished by the Contractor. Deliver touch-up
14 paint with other "loose and detachable parts".

15
16 **PART 2 – PRODUCTS**

17
18 **2.1. SPECIFIED ITEMS - SUBSTITUTES**

- 19 A. Wherever catalog numbers and specific or trade names are used in conjunction with a designated material, product, item,
20 or service mentioned in these Specifications, they are used to establish the standards of quality, utility, and appearance
21 required. Substitutions will be approved, subject to the following provisions:
 - 22 a. Contractors or manufacturers may request that their product be substituted for specified products where sole sourc-
23 ing is not stated, (i.e. no substitutions allowed). Requested may be submitted up to 10 calendar days prior bid due
24 date. All requests must be accompanied by sufficient information to judge its suitability for this project. Accepted
25 substitutions shall be listed per addendum.
 - 26 b. Owner may reject any substitute request without providing specific reasons.
 - 27 c. Owner may accept substitution requests after contract award, but reserves the right to refuse review or acceptance
28 of any requests without providing specific reasons.
 - 29 d. All Substitutions must be accepted by the owner in writing. The owner will accept, in writing, such proposed substi-
30 tutions as are in his or her opinion, equal in quality, utility, and appearance to the items or materials specified. Such
31 acceptance shall not relieve the Contractor from complying with the requirements of the drawings and specifica-
32 tions, and the Contractor shall be responsible at Contractor's own expense for any changes resulting from Contractor
33 proposed substitutions which affect the other parts of Contractor's own work or the work of others.
 - 34 e. The manufacturer shall be a company specializing in the manufacture of the specified equipment and accessories
35 with minimum five years documented experience.
 - 36 f. Failure of the Contractor to submit proposed substitutions for approval in the manner described above and within
37 the time prescribed shall be sufficient cause for disapproval by owner of any substitutions otherwise proposed.
- 38 B. Specifications may mention other manufacturers than the specific device specified. Those are manufacturers that in gen-
39 eral are acceptable, but may not have a product for this specific project. Those manufacturers still may be rejected without
40 providing specific reasons. The bidder only can rely on using items specifically mentioned in the contract documents.

41
42 **2.2. APPROVED TESTING LABORATORIES**

- 43 A. The following laboratories are approved for providing electrical product safety testing and listing services as required in
44 these specifications:
 - 45 1. Underwriters Laboratories Inc.
 - 46 2. Electrical Testing Laboratories, Inc.

47
48 **2.3. HAZARDOUS SUBSTANCES**

- 49 A. The Subcontractor shall submit to the Project Representative, for review by the EH&S Division, any proposed procurement,
50 stocking, installing, or other use of materials containing asbestos, cadmium, chromates, or lead.
- 51 B. All materials and applications shall comply with requirements of any and all Districts Regulations, including, but not limited
52 to architectural coatings, general solvent and surface coatings, solvent cleaning operations, adhesive and sealants, visible
53 emissions, and asbestos.
- 54 C. Contractor shall keep and maintain proof of compliance with the above-referenced regulations, including any recordkeep-
55 ing obligations, for a period of two years after completion of the project. Contractor shall make such documents or evi-
56 dence available if so requested by owner.
- 57 D. No materials outlawed in any of the 50 US states are to be used. Only equipment and material legal in all 50 states is to be
58 used. All Federal, state, county and local codes and ordinances regarding are to be considered deciding if a piece of equip-
59 ment or material is to be used.
- 60 E. The contractor assumes responsibility for proper removal, collection and storage of hazardous substances on site and dis-
61 posal of those if hazardous substances were known to be present and pointed out in these specifications or on the plans. If
62 hazardous substances are not known to be present and are found, the owner assumes responsibility for additional cost due
63 to removal, collection and storage on site. All hazardous substances are to be disposed in accordance with all federal, state
64 and local laws, codes and regulations. It is the contractor's responsibility to recognize typical hazardous substances not

- 1 known to be present. This includes all substances that were used in buildings of that type in the period since original construction.
- 2
- 3 F. Contractor will assume that all electronic components, machinery, refrigeration devices and other common devices contain hazardous substances and include disposal of such in bid price, even if those substances are not mentioned separately. If special tests are necessary the owner assumes responsibility for such.
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- 5
- 6 G. ASBESTOS:
- 7 1. Contractor's attention is directed to WAC NR 447, WAC HSS 159 and the Occupational Safety and Health Act (OSHA) in general, part 1926.1101--ASBESTOS in particular. Contractor is responsible for compliance with all applicable regulations when the work includes fastening to or coring through Asbestos Containing Materials (ACM) and disturbance of asbestos containing caulking and mastics. Unless otherwise indicated, all caulking, sealants, glazing compounds, gaskets, asphalt roofing materials and miscellaneous adhesives are assumed to contain asbestos and are considered to be Category I non-friable ACM as defined in NR 447. Waste material containing Category I non-friable ACM, is regulated as Construction and Demolition (C&D) waste and may be disposed of at a Department of Natural Resources (DNR) approved C&D waste landfill. If Contractor's work methods cause non-friable ACM to become friable, the Contractor is responsible for the disposal of the friable asbestos waste at a landfill specifically approved by DNR to accept friable asbestos. A copy of the signed waste manifest for the disposal of all friable asbestos waste shall be provided to owner prior to request for final payment.
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- 18 2. The regulations referenced above require removal of friable ACM and Category II non-friable ACM prior to demolition of a building. Category I non-friable ACM does not need to be removed from a building prior to demolition if the waste generated from the demolition is taken to a DNR approved C & D waste landfill. If the contractor chooses to recycle building materials from a building to be demolished, the contractor is responsible for removal and disposal of all Category I non-friable ACM in accordance with applicable regulations prior to demolition. If the contractor's demolition methods will cause non-friable ACM to become friable, the contractor is responsible for removal and disposal of all Category I non-friable ACM in accordance with applicable regulations prior to demolition.
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- 25 3. The asbestos abatement contractor will require sole occupancy of the workspace during asbestos abatement work. Contractor shall communicate with the asbestos abatement contractor and make adequate allowance for the asbestos abatement work in the work schedule
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- 28 H. LEAD BASED PAINT: Conform with OSHA and EPA recommended worker safety requirements when removing lead based paint or material bearing lead based paint or material contaminated with lead by the demolition process. Contractor's attention is directed to the Occupational Safety and Health Act (OSHA) in general and particularly to 29 CFR 1910 (LEAD STANDARD) and to CFR 1926 (LEAD EXPOSURE IN THE CONSTRUCTION INDUSTRY). For OSHA compliance and regulation interpretations, contractors may contact the area OSHA office for this project. [Milwaukee, telephone (414) 297-3315; Appleton, telephone (414) 734-4521; Eau Claire, telephone (715) 832-9019]. Dispose of refuse containing lead based paint or contaminated with lead by the demolition process in conformance with State of Wisconsin Hazardous Waste Regulations set forth by the Department of Natural Resources and in conformance with OSHA and EPA recommended worker safety requirements.
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- 37 I. PCB'S: Contractor shall assume all ballasts and transformers not specifically labelled as "no PCB" type to contain PCB and to dispose properly meeting all regulatory requirements
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- 39 J. MERCURY-CONTAINING DEVICES: Mercury containing devices are accumulated in our facilities for eventual recycling through a contracted vendor. These devices include certain building controls and switches, thermometers, and lamps. Lamps are stored in accordance with Environmental Protection Agency universal waste regulation 40 CFR part 273 including storing them in containers with labels describing the contents and the start date of accumulation.
- 40
- 41
- 42
- 43 K. PAINT AND RELATED PRODUCTS: The oil-based paints are disposed of as hazardous waste
- 44 L. USED APPLIANCES AND BUILDING EQUIPMENT: Used appliances include microwaves, refrigerators, and ice machines. Smaller pieces of building equipment include items such as water heaters and variable-drive motors. All of these items are recycled by a contracted vendor at eh contractor's expense.
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- 46
- 47 M. VOC: Volatile Organic Compounds in materials shall be limited to these maximum values:
- 48 1. Adhesives and Sealants:
- 49 2. Wood Glues: 30 g/L.
- 50 3. Metal-to-Metal Adhesives: 30 g/L.
- 51 4. Adhesives for Porous Materials (Except Wood): 50 g/L.
- 52 5. Subfloor Adhesives: 50 g/L.
- 53 6. Plastic Foam Adhesives: 50 g/L.
- 54 7. Carpet Adhesives: 50 g/L.
- 55 8. Carpet Pad Adhesives: 50 g/L.
- 56 9. VCT and Asphalt Tile Adhesives: 50 g/L.
- 57 10. Cove Base Adhesives: 50 g/L.
- 58 11. Gypsum Board and Panel Adhesives: 50 g/L.
- 59 12. Rubber Floor Adhesives: 60 g/L.
- 60 13. Ceramic Tile Adhesives: 65 g/L.
- 61 14. Multipurpose Construction Adhesives: 70 g/L.
- 62 15. Fiberglass Adhesives: 80 g/L.
- 63 16. Contact Adhesive: 80 g/L.
- 64 17. Structural Glazing Adhesives: 100 g/L.
- 65 18. Wood Flooring Adhesive: 100 g/L.

- 1 19. Structural Wood Member Adhesive: 140 g/L.
- 2 20. Single-Ply Roof Membrane Adhesive: 250 g/L.
- 3 21. Special Purpose Contact Adhesive (contact adhesive that is used to bond melamine covered board, metal, unsupported
- 4 vinyl, rubber, or wood veneer 1/16 inch or less in thickness to any surface): 250 g/L.
- 5 22. Top and Trim Adhesive: 250 g/L.
- 6 23. Plastic Cement Welding Compounds: 250 g/L.
- 7 24. ABS Welding Compounds: 325 g/L.
- 8 25. CPVC Welding Compounds: 490 g/L.
- 9 26. PVC Welding Compounds: 510 g/L.
- 10 27. Adhesive Primer for Plastic: 550 g/L.
- 11 28. Sheet Applied Rubber Lining Adhesive: 850 g/L.
- 12 29. Aerosol Adhesive, General Purpose Mist Spray: 65 percent by weight.
- 13 30. Aerosol Adhesive, General Purpose Web Spray: 55 percent by weight.
- 14 31. Special Purpose Aerosol Adhesive (All Types): 70 percent by weight.
- 15 32. Other Adhesives: 250 g/L.
- 16 33. Architectural Sealants: 250 g/L.
- 17 34. Non-membrane Roof Sealants: 300 g/L.
- 18 35. Single-Ply Roof Membrane Sealants: 450 g/L.
- 19 36. Other Sealants: 420 g/L.
- 20 37. Sealant Primers for Nonporous Substrates: 250 g/L.
- 21 38. Sealant Primers for Porous Substrates: 775 g/L.
- 22 39. Modified Bituminous Sealant Primers: 500 g/L.
- 23 40. Other Sealant Primers: 750 g/L.
- 24 41. Inside Paints and Coatings:
- 25 42. Flat Paints, Coatings, and Primers: VOC not more than 50 g/L.
- 26 43. Nonflat Paints and Coatings: VOC not more than 150 g/L.
- 27 44. Dry-Fog Coatings: VOC not more than 400 g/L.
- 28 45. Primers, Sealers, and Undercoaters: VOC not more than 200 g/L.
- 29 46. Anticorrosive and Antirust Paints applied to Ferrous Metals: VOC not more than 250 g/L.
- 30 47. Zinc-Rich Industrial Maintenance Primers: VOC not more than 340 g/L.
- 31 48. Pretreatment Wash Primers: VOC not more than 420 g/L.
- 32 49. Clear Wood Finishes, Varnishes: VOC not 1 more than 350 g/L.
- 33 50. Clear Wood Finishes, Lacquers: VOC not more than 550 g/L.
- 34 51. Floor Coatings: VOC not more than 100 g/L.
- 35 52. Shellacs, Clear: VOC not more than 730 g/L.
- 36 53. Shellacs, Pigmented: VOC not more than 550 g/L.
- 37 54. Stains: VOC not more than 250 g/L.

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39 **2.4. BARRICADES, SIGNS, WARNING DEVICES, AND TEMPORARY PLASTIC BARRIERS**

- 40 A. Traffic barricades, traffic signs, and warning devices shall meet the requirements of applicable OSHA standards and the FHA
- 41 Manual of Uniform Traffic Control Devices (MUTCD).
- 42 B. UV stabilized high-density polyethylene barrier fence free of holes tears and other defects. Provide 4' tall fence in diamond
- 43 or rectangular pattern. Fencing shall be "safety orange" color, unless otherwise noted.
- 44 C. Posts for temporary plastic barrier fencing shall be 5' tall, minimum 12 gauge, painted metal posts.

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46 **2.5. SEALING AND FIRESTOPPING**

- 47 A. Manufacturers: 3M, Hilti, Rectorseal, STI/SpecSeal, Tremco, or approved equal.
- 48 B. All firestopping systems shall be provided by the same manufacturer and shall be UL listed.
- 49 C. Submittals: Contractor shall submit product data for each firestop system. Submittals shall include product characteristics,
- 50 performance and limitation criteria, test data, MSDS sheets, installation details and procedures for each method of instal-
- 51 lation applicable to this project. For non-standard conditions where no UL tested system exists, submit manufacturer's
- 52 drawings for UL system with known performance for which an engineering judgment can be based upon.
- 53 D. Use a product that has a rating not less than the rating of the wall or floor being penetrated.
- 54 E. Contractor shall use firestop putty, caulk sealant, intumescent wrapstrips, intumescent firestop collars, firestop blocks,
- 55 firestop mortar or a combination of these products to provide a UL listed system for each application required for this pro-
- 56 ject. Provide mineral wool backing where specified in manufacturer's application detail.
- 57 F. Where shown or specified, pack annular space with fiberglass batt insulation or mineral wool insulation. Provide 4" sheet
- 58 metal escutcheon around duct on both sides of partition or floor to cover annular space.
- 59 G. Install approved product in accordance with the manufacturer's instructions where an installation penetrates a fire/smoke
- 60 rated surface. When pipe is insulated, use a product, which maintains the integrity of the insulation and vapor barrier.
- 61 H. Whenever possible, avoid penetrations of fire and smoke rated partitions. When they cannot be avoided, verify that suffi-
- 62 cient space is available for the penetration to be effectively fire and smoke stopped.

63

PART 3 – EXECUTION

3.1. PROJECT MEETINGS

- A. Project meetings will be held at the time designated by the owner. If the principal of the firm does not attend meetings, a responsible representative of the Contractor who can bind the Contractor to a decision at the meetings shall attend. The contractor will write a report covering all items discussed and decisions reached and copy of such report distributed to all parties involved within 3 business days. All contractors, sub-contractors and other related parties shall attend. Attendance especially is required if such contractor is scheduled to perform work within the next 6 weeks.
- B. PRE-CONSTRUCTION MEETING: Owner, design representatives and all contractor and sub-contractor representatives attend.
- C. PRE-INSTALLATION MEETING: prior installation, layout or other activities related to major systems, separate meetings will be held to ensure proper coordination. These meetings will be initiated by the contractor. Not initiating these meetings doesn't relieve the contractor from coordination responsibilities. The owner may set up such meetings as needed

3.2. CONTINUITY OF SERVICE, TRAFFIC, SHUTDOWN AND ACCESS

- A. SITE ACCESS: The stairs shall be taken out of service for the dates as indicated in Section D of the General Requirements.
- B. Contractor shall verify the locations of any water, drainage, gas, sewer, electric, drainage, gas, sewer, electric, telephone/communication, fuel, steam lines or other utilities and site features which may be encountered in any excavations or other site work. All lines shall be properly underpinned and supported to avoid disruption of service.

3.3. DEMOLITION

- A. Perform all demolition as indicated on the drawings to accomplish new work. Demolition Drawings are based on casual field observation and/or existing record documents. Verify field measurements and circuiting arrangements as shown on Drawings, verify that abandoned wiring, piping, ducting and equipment serve only abandoned facilities. Report discrepancies to the owner before disturbing existing installation. Beginning of demolition means installer accepts existing conditions.
- B. Demolition all abandoned services and devices in areas affected by this contract, even if not shown on plans. This includes but is not limited to wiring, conduits, piping, and equipment.
- C. Patch holes and openings caused by removal of material and equipment, or formerly covered by such, with like material and texture of surrounding surface. Paint to match surroundings.
- D. Disconnect all services in a manner which allows for future connection to that service. Disconnect services to equipment at unions, flanges, valves, or fittings wherever possible.
- E. Approval of all Jurisdictions Having Authority shall be obtained prior to disposal of any equipment and materials. All disposal has to be in compliance with all local, county, state and nationwide regulations.
- F. Don't demolition or damage equipment and material that is to stay in place. Replace and repair any equipment and installations that get damaged during demolition. The Contractor shall restore all disturbed areas in accordance with the drawings and specifications. If plans and specifications do not address restoration of specific areas, these areas will be restored to pre-construction conditions as approved by owner.
- G. Verify the locations of, and protect, any buildings, structures, utilities, paved surfaces, signs, streetlights, utilities, landscaping and all other such facilities that are intended to remain or be salvaged. Make such explorations and probes as necessary to ascertain any required protection measures that shall be used before proceeding with demolition.
- H. Provide and maintain adequate catch platforms, warning lights, barricades, guards, weather protection, dust protection, fences, planking, bracing, shoring, piling, signs, and other items required for proper protection.
- I. Report damage of any facilities or items scheduled for salvaging to owner.
- J. Explosives shall not be used for demolition.
- K. Remove all equipment, fixtures and other materials scheduled for salvage prior to beginning demolition operations.
- L. Abandon gas, electric and communication utilities in accordance with local utility company requirements, or applicable substantive requirements if considered private.
- M. Carry out vehicle loading as necessary within the project boundaries or as defined or indicated on the drawings, but not in locations that block vehicular traffic on the streets or pedestrian traffic on adjacent public walks.
- N. Dismantle each structure in an orderly manner to provide complete stability of the structure at all times. Provide bracing and shoring where necessary to avoid premature collapse of structure.
- O. Conduct demolition operations and the removal of rubbish and debris in such a way that a minimum of nuisance dust is caused. Constantly sprinkle rubbish and debris with water if necessary to keep nuisance dust to a minimum.
- P. Where necessary to prevent collapse of any construction, install temporary shores, underpinning, struts or bracing. Do not commence demolition work until all temporary construction is complete.
- Q. Masonry and concrete shall be demolished in small sections. Use braces and shores as necessary to support the structure of the building or structure and protect it from damage. Where limits of demolition are exposed in the finished work, cutting shall be made with saws, providing an absolutely straight line, plumb, true and square.
- R. Operate equipment so as to cause a minimum of damage to plaster which is to remain, and so as to keep dust and dirt to a minimum.

3.4. TEMPORARY CONSTRUCTION

- A. Temporary construction shall conform to all requirements and laws of state and local authorities, which pertain to operation, safety, and fire hazards. Contractor shall furnish and install all items necessary for conformance with such require-

- 1 ments, whether called for under separate sections of these Specifications or not. Contractor shall provide, maintain, and
2 remove upon completion of his work:
- 3 B. Employ temporary crossovers and bypass to utilities, electrical connections, traffic and footbridges, and walkways used to
4 maintain services or communications, which cannot be interrupted or curtailed.
- 5 C. Provide temporary rigging, scaffolding, shoring, hoisting equipment, and all other temporary work as required for this pro-
6 ject.

7 **3.5. INSTALLATION**

- 8 A. Install in accordance with manufacturer's instructions and all code requirements. Provide the owner with copy of manufac-
9 turer's instructions prior to installation. The Contractor shall be responsible for correcting any infringement on this re-
10 quirement at no cost to owner.
- 11 B. Provide carpentry, cutting, patching, and core drilling required for installation of material and equipment.

12
13 **3.6. DELIVERY, STORAGE AND HANDLING OF MATERIALS**

- 14 A. Contractor must be present to accept delivery of all equipment and material shipments. Owner will not knowingly accept,
15 unload or store anything delivered to the site for the Contractor's use. Inadvertent acceptance of delivered items by owner
16 shall not constitute acceptance or responsibility for any of the materials or equipment. It is the Contractor's responsibility
17 to assume liability for equipment or material delivered to the job site.
- 18 B. Comply with manufacturer's ordering instructions and lead-time requirements to avoid construction delays. Materials and
19 equipment shall be delivered to the site in adequate time to ensure uninterrupted progress of the work and inspection of
20 material by owner. Deliver materials in manufacturer's original, unopened, undamaged containers with identification labels
21 intact. Packaged units shall be delivered in their original crates.
- 22 C. Store in a clean and dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to
23 protect units from dirt, water, construction debris, and traffic. Promptly inspect shipments to insure that the material is un-
24 damaged and complies with specifications. Materials or equipment, which do not conform to the Specifications or are dam-
25 aged shall not be incorporated in the work and shall be immediately removed from the site.
- 26 D. Contractor shall confine equipment, apparatus, storage of materials and operations to limits indicated on the drawings or
27 by specific direction of owner. The Contractor assumes full responsibility for damage due to the storage of materials.
- 28 E. Material shall be stored according to manufacturer's recommendations as a minimum. Provide and maintain watertight
29 storage sheds on the premises where directed, for storage of materials that might be damaged by weather. Materials, con-
30 struction sheds, and earth stockpiles shall be located so as not to interfere with the use of the park.
- 31 F. If necessary, material will be stored off site at the Contractor's expense. Offsite storage agreements will not relieve the
32 Contractor from using proper storage techniques. Storage and protection methods must allow inspection to verify prod-
33 ucts.
- 34 G. All materials shall be stored in a manner that prevents release of hazardous material to the environment. All hazardous
35 materials, including motor fuels, shall be properly handled and contained to prevent spills or other releases. The Contractor
36 shall develop and maintain a contingency plan to provide emergency response, containment, and cleanup of spills of haz-
37 ardous materials resulting from contract activities. All spills and releases shall be reported to owner immediately

38
39 **3.7. CONCRETE WORK**

- 40 A. See applicable specifications Division 3- Concrete, Section -3 30 00- Cast-in-place concrete.

41
42 **3.8. OPENINGS, SLEEVES, CUTTING, STRUCTURAL ATTACHMENT, PATCHING AND PAINTING**

- 43 A. Before any drilling, cutting or other type of opening the contractor shall verify that no conduits, wires, pipes or other items
44 are in or near opening area.
- 45 B. Openings shall be the responsibility of the Contractor requiring the openings even if such openings are not shown on draw-
46 ings. The Contractor shall install sleeves for all openings and shall submit to the owner for review and approval, layout
47 drawings of all such required sleeves and/or openings. Sleeve and opening sizes and locations shall be dimensioned from
48 column lines and floor elevations or from a point of reference approved by owner.
- 49 C. No devices or materials shall be attached to non-structural or structural members or parts of the structure without approval
50 by owner. All items shall be attached to structurally stable parts only.

51
52 **3.9. IDENTIFICATION**

- 53 A. Not applicable.

54
55 **3.10. TRAINING AND DEMONSTRATION**

- 56 A. The owner's facility staff (and occupants and service Contractors as needed), shall receive orientation and training on the
57 proper care and maintenance of the roofing system with emphasis on preventative inspections. This training shall be sum-
58 marized in the O&M Manual.

59
60 **3.11. TESTS, PUNCH LIST AND FINAL ACCEPTANCE**

- 61 A. Contractor shall make all necessary adjustments and replacements affecting the work, which is necessary to fulfill owner's
62 requirements and to comply with the directions and recommendations of the manufacturer, and to comply with all codes
63 and regulations, which may apply to the entire installation.
- 64 B. Notice that the work is ready for final inspection and acceptance shall be given after the Contractor has carefully inspected
65 all portions of the work, has reviewed in detail the drawings and specifications, and that to the best of the Contractor's

1 knowledge all conditions of the contract documents have been fulfilled. The owner and the Contractor shall make a joint
2 inspection of the work and owner will issue a punchlist.

3 1. Multiple punch lists can be submitted and neither punchlist may be considered final. Punchlist can be submitted
4 throughout the entire warranty period.

5 2. If Contractor fails to perform required corrective work in less than 30 days upon receipt of punch list by Contractor,
6 owner can perform corrections or hire a separate contractor and charge the Contractor the full cost.

7 3. Contractor shall advise owner that the necessary work has been performed. If punch list items were not resolved and
8 the work was not performed in less than 30 days upon receipt of punch list by Contractor, the Contractor shall be re-
9 quired to compensate the owner for additional site visits of project manager, design professional and other related
10 staff at a rate of \$ 100/hour plus mileage. The amount shall be paid to the owner prior to processing the final pay-
11 ment. Payment may be processed as deductive change order.

12 C. After deficiencies, if any, have been corrected or accounted for, and after all work is satisfactorily complete, the City will
13 accept the work; and Notice of Completion will be filed by owner. The contractor shall inspect the roofing system before
14 claiming completion. Prior to final acceptance, filing of the Notice of Completion or processing of final payment, the follow-
15 ing shall be done and submitted reviewed and accepted by owner:

16 1. Certificates of compliance and guarantees required under various Sections

17 2. Operating and maintenance manuals

18 3. Instruction to City personnel, as required

19 4. Replacement material as required in specifications

20 5. As-built documents

21 6. All punch list items resolved

22 7. All training provided (except deferred seasonal training)

23 8. All warranty issues brought to Contractor's attention so far resolved

24 9. Warranty documents signed by representative of manufacturer, guarantee documents, roofing agreement and other
25 warranty related documents

26 27 **3.12. CLEANING**

28 A. The construction site shall be kept in clean and safe manner. The Contractor shall clean up and remove from the premises,
29 on a daily basis accumulation of surplus materials, rubbish, debris and scrap and shall repair all damage to new and exist-
30 ing equipment resulting from its work. When job is complete, this Contractor shall remove all tools, excess material and
31 equipment, etc., from the site. Contractors or subcontractors found to be in violation may be required to leave the jobsite
32 until their staff is trained in orderly, clean and safe construction site work. Clean and safe construction site includes but is
33 not limited to:

34 1. All trades keep a separate and neat area for material, equipment etc.

35 2. Equipment and material not needed anymore is removed from the jobsite

36 3. Demolition material and equipment is removed from jobsite daily

37 4. All material and equipment is sorted and stored properly

38 B. Spreading of dirt, dust and other construction related material must be kept to a minimum. Occupied and work areas must
39 be separated by seals. Such seals shall be inspected and repaired frequently as needed to ensure proper sealing at all
40 times.

41 C. Keep streets, walks and all other adjacent paved areas clean and swept clear of dirt, mud and debris deposited as a result
42 of this operation. Protect surrounding area from dust. Control rodents, and other vermin associated with demolition op-
43 erations.

44 D. All installed items shall be cleaned at time of installation, and all lens exteriors shall be cleaned just prior to final inspec-
45 tion. Equipment shall be thoroughly cleaned of all stains, paint, spots, dirt and dust. All temporary labels not used for in-
46 struction or operation shall be removed. Dust, dirt and other foreign matter shall be removed completely from all internal
47 surfaces of all mechanical and electrical units, cabinets, ducts, pipes, etc. Dirt, soil, fingerprints, stains and the like, shall be
48 completely removed from all exposed finished surfaces.

49 E. Contractor shall wash all glass immediately prior to the occupancy of this project. Work shall include the removal of labels,
50 paint splattering, glazing compound and sealant. Surfaces shall include mirrors and both sides of all glass in windows, bor-
51 rowed lights, partitions, doors and sidelights. In addition to the above, the Contractor shall be responsible for the general
52 "broom" cleaning of the premises and for expediting all of the cleaning, washing, waxing and polishing required within the
53 technical sections of the specifications governing work under this Contract. The Contractor shall also perform "final"
54 cleaning of all exposed surfaces to remove all foreign matter, spots, soil, construction dust, etc., so as to put the project in
55 a complete and finished condition ready for acceptance and use intended.

56 F. If rubbish and debris is not removed, or if surfaces are not cleaned as specified above, the owner reserves the right to have
57 said work done by others and the related cost(s) will be deducted from monies due the Contractor.

58
59 **END OF SECTION**
60

**SECTION 01 26 57
CHANGE ORDER REQUESTS (COR)**

1
2
3
4 PART 1 – GENERAL 1
5 1.1. SUMMARY 1
6 1.2. RELATED SPECIFICATION SECTIONS 2
7 1.3. DEFINITIONS AND STANDARDS 2
8 1.4. CONTRACT EXTENSION 3
9 1.5. OVERHEAD AND PROFIT MARKUP 3
10 1.6. PERFORMANCE REQUIREMENTS 3
11 1.7. QUALITY ASSURANCE 4
12 PART 2 – PRODUCTS 4
13 2.1. CHANGE ORDER REQUEST FORM 4
14 PART 3 - EXECUTION 4
15 3.1. ESTABLISHING A CHANGE ORDER REQUEST 4
16 3.2. SUBMIT A CHANGE ORDER REQUEST FORM 4
17 3.3. CHANGE ORDER REQUEST REVIEW, APPROVAL, AND PROCESSING 5
18 3.4. EMERGENCY CHANGE ORDER REQUEST 5

PART 1 – GENERAL

1.1. SUMMARY

- 19
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21
22
23 A. Except in cases of emergency no changes in the Work required by the Contract Documents may be made by
24 the General Contractor (GC) without having prior approval of the City Engineer or his representative.
25 B. The City may at any time, without invalidating the Contract and without Notice to Sureties, order changes in
26 the Work by written Change Order (CO). Such changes may include additions and/or deletions.
27 C. Where the City desires to make changes in the Work through use of written Change Order Request (COR), the
28 following procedures apply:
29 1. If requested by the City, the GC shall prepare and submit a detailed proposal, including all cost and time
30 adjustments to which the GC believes it will be entitled if the change proposed is incorporated into the
31 Contract. The City shall be under no legal obligation to issue a Change Order for such proposal.
32 2. The parties shall attempt in good faith to reach agreement on the adjustments needed to the Contract to
33 properly incorporate the proposed change(s) into the Work. In the event that the parties agree on such
34 adjustments, the City may issue a Change Order and incorporate such changes and agreed to
35 adjustments, if any.
36 3. In some instances, it may be necessary for the City to authorize Work or direct changes in Work for which
37 no final and binding agreement has been reached and for which unit prices are not applicable. In such
38 cases the following shall apply.
39 a. Upon written request by the City, the GC shall perform proposed Work
40 b. The cost of such change may be determined in accordance with this specification.
41 c. In the event agreement cannot be accomplished as contemplated herein, the City may authorize
42 the Work to be performed by City forces or to hire others to complete the Work. Such action on
43 the part of the City shall not be the basis of a claim by the GC for failure to allow it to perform the
44 changed Work.
45 D. Where changes in the Work are made by the City through use of a force account basis, the GC shall as soon as
46 practicable, and in no case later than ten (10) working days from the receipt of such order, unless another time
47 period has been agreed to by both parties, give the City written Notice, stating:
48 1. The date, circumstances and source of the extra work; and,
49 2. The cost of performing extra work described by such Order, if any; and,
50 3. Effect of the order on the required completion date of the Project, if any.
51 E. The giving of each Notice by the GC as prescribed by this specification, shall be a requirement to liability of the
52 City for payment of any additional costs incurred by the GC in implementing changes in the Work. Under this
53 specification, no order or statement of the City shall be treated as a Change Order, or shall entitle the GC to an
54 equitable adjustment of the terms of this Contract or damages for costs incurred by the GC on any activity for
55 which the Notice was not given.
56 F. In the event Work is required due to an emergency as described in this specification the GC must request an
57 equitable adjustment as soon as practicable, and in no case later than ten (10) working days of the
58 commencement of such emergency.

- 1 G. All GC requests for equitable adjustment shall be submitted to the CPM per the specifications below. Such
2 requests shall set forth with specificity the amount of and reason(s) for the proposed adjustment and shall be
3 accompanied by supporting information and documents.
4 H. No adjustment of any kind shall be made to this Contract, if asserted by the GC for the first time, after the date
5 of final payment.
6 I. This specification shall be used by the GC when preparing documentation for any COR to ensure each has been
7 properly and completely filled out as required by the City of Madison.
8 J. All COR documentation will be processed through the through the Construction Administration-Change Order
9 Request Library on the Project Management Web Site (PMWS).

10
11 **1.2. RELATED SPECIFICATION SECTIONS**

- 12 A. Section 01 26 13 Request for Information (RFI)
13 B. Section 01 26 46 Construction Bulletins (CB)
14 C. Section 01 26 63 Change Order (CO)
15 D. Section 01 31 23 Project Management Web Site
16 E. Parts of this specification will reference articles within "The City of Madison Standard Specifications for Public
17 Works Construction".
18 1. Use the following link to access the Standard Specifications web page:
19 <http://www.cityofmadison.com/business/pw/specs.cfm>
20 a. Click on the "Part" chapter identified in the specification text. For example if the specification
21 says "Refer to City of Madison Standard Specification 210.2" click the link for Part II, the Part II
22 PDF will open.
23 b. Scroll through the index of Part II for specification 210.2 and click the text link which will take you
24 to the referenced text.

25
26 **1.3. DEFINITIONS AND STANDARDS**

- 27 A. LABOR: The amount of time and cost associated with the performance of human effort for a defined scope of
28 Work. Labor is further defined as follows:
29 1. Labor rate is the total rate which includes the base rate, taxes, insurance and fringe benefits required by
30 agreement or custom.
31 2. Unit labor is the labor hours anticipated to install the corresponding unit of material.
32 3. Labor cost is the labor hours multiplied by the hourly labor rates.
33 B. MATERIAL: Actual material cost is the amount paid, or to be paid, by the GC for materials, supplies and
34 equipment entering permanently into the Work, including cost of transportation and applicable taxes. The cost
35 shall not exceed the usual and customary cost for such items available in the geographical area of the project
36 C. LARGE TOOLS AND MAJOR EQUIPMENT: Large tools and major equipment are those with an initial cost greater
37 than \$1,000, whether from the GC or other sources.
38 1. Tool and equipment use and time allowed is only for extra work associated with change orders.
39 a. Rental Rate is the machine cost associated with operating a piece of equipment for a defined
40 length of time (hour, day, week, or month) and shall not exceed the usual and customary amount
41 for such items available in the geographical area of the project.
42 b. Rental cost is the rental rate multiplied by the anticipated duration the equipment shall be
43 required.
44 2. The GC shall provide a breakdown of all rental rates to indicate what items and costs are associated with
45 the rate. Examples of items to include in the breakdown would be fuel consumption, lubrication,
46 maintenance and other similar expenses but not including profit and overhead.
47 3. When large tools and equipment needed for Change Order work are not already at the job site, the
48 actual cost to get the item there is also reimbursable.
49 D. BOND COST: The cost shall be calculated at 1% of the total proposed change order.
50 E. SUB-CONTRACTOR COSTS: Sub-contractor costs are for those labor, material, and equipment costs required by
51 subcontracted specialties to complete the Change Order work including allowable markups as outlined within
52 this specification.
53 F. OVERHEAD AND PROFIT Markup: The allowable markup percentage to a COR by the GC and Sub-contractors for
54 overhead and profit. All of the following are expenses associated with overhead and profit and shall not be
55 reimbursable as individual items on any COR:
56 1. CHANGE ORDER PREPARATION: All costs associated with the preparing and processing of the change
57 order.

- 1 2. DESIGN, ESTIMATING, AND SUPERVISION: All such efforts, unless specifically requested by Owner as
- 2 additional Work to be documented as a COR or portion thereof.
- 3 3. INSTALLATION LAYOUT: The layout required for the installation of material and equipment, and the
- 4 installation design, is the responsibility of the GC.
- 5 4. SMALL TOOLS AND SUPPLIES: The cost of small hand tools with an initial cost of \$1,000 or less, along
- 6 with consumable supplies and expendable items such as drill bits, saw blades, gasoline, lubricating or
- 7 cutting oil, and similar items.
- 8 5. GENERAL EXPENSE: The general expense, which is those items that are a specific job cost not associated
- 9 with direct labor and material such as job trailers, foreman truck, and similar items.
- 10 6. RECORD DRAWINGS: The preparation of record or as-built drawings.
- 11 7. OTHER COSTS: Any miscellaneous cost not directly assessable to the execution of the Change Order
- 12 including but not limited to the following:
- 13 a. All association dues, assessments, and similar items.
- 14 b. All education, training, and similar items.
- 15 c. All drafting and/or engineering, unless specifically requested by Owner as additional Work to be
- 16 documented as a Change Order proposal or portion thereof.
- 17 d. All other items including but not limited to review, coordination, estimating and expediting, field
- 18 and office supervision, administrative work, etc.
- 19 G. Contract Extension: The necessary amount of time to be added to the contract deadlines for the completion of a
- 20 change order.
- 21

22 **1.4. CONTRACT EXTENSION**

- 23 A. The GC shall not assume that every COR will require a Contract Extension. If the GC feels a contract extension is
- 24 warranted he/she shall provide sufficient scheduling information that shows how the COR being requested
- 25 impacts the critical path of the project.
- 26 B. The City of Madison strongly encourages the GC to explore alternative methods and practices prior to submitting
- 27 a COR with a request for contract extension.
- 28

29 **1.5. OVERHEAD AND PROFIT MARKUP**

- 30 A. Pursuant to the City of Madison Standard Specifications for Public Works Construction, Section 104.7, Extra
- 31 Work, the following maximum allowable markups shall be strictly enforced on all change orders associated with
- 32 the execution of this contract.
- 33 1. The total maximum overhead and profit shall not exceed fifteen percent (15%) of the total costs.
- 34 2. The total maximum overhead and profit shall be distributed as follows:
- 35 a. For work performed and materials provided solely by the General Contractor, fifteen percent
- 36 (15%) of the total costs.
- 37 b. For work performed and materials provided solely by Sub-contractors and supervised by the
- 38 General Contractor:
- 39 i. Supervision of the GC, five percent (5%) of the total Sub-contractor cost.
- 40 ii. Sub-contractors work and materials ten percent (10%) of the total Sub-contractor cost.
- 41

42 **1.6. PERFORMANCE REQUIREMENTS**

- 43 A. The GC shall become thoroughly familiar with this specification as it will identify procedures and expenses that
- 44 are or are not allowed under the Change Order and Change Order Request process.
- 45 B. The GC shall be responsible for all of the following:
- 46 1. Carefully reviewing the CB that is associated with the COR.
- 47 2. Collecting required supporting documentation from all contractors that quantify the need for a COR.
- 48 a. Labor hours and wage rates
- 49 b. Material costs
- 50 c. Equipment costs
- 51 C. The following shall apply to establishing prices for labor, materials, and equipment costs:
- 52 1. Where Work to be completed has previously been established by individual bid items in the contract bid
- 53 proposal the GC shall use the unit bid prices previously established.
- 54 2. Where Work to be completed was bid as a Lump Sum without individual bid items the GC shall provide a
- 55 breakdown of all labor, materials, equipment including unit rates and quantities required.
- 56 D. The completion date is determined by Owner. The schedule, however, is the responsibility of the GC. Time
- 57 extensions for extra Work will be considered when a schedule analysis of the critical path shows that the Change
- 58 Order Request places the Work beyond the completion date stated in the Contract.

1
2 **1.7. QUALITY ASSURANCE**

- 3 A. The GC shall be responsible for ensuring that all COR supporting documentation meets the following
4 requirements prior to completing the COR form on the Project Management Web Site:
5 1. Sufficiently indicates labor, material, and other expenses related to completing the intent of the CB.
6 2. No costs exceed the usual and customary amount for such items available in the geographical area of the
7 project, and no costs exceed those established under the contract.
8 B. The Project Architect (PA), City Project Manager (CPM), other members of the consulting staff, and city staff shall
9 review all COR requests to ensure that the intent of the CB will be met under the proposal of the COR or request
10 additional information as necessary.
11

12 **PART 2 – PRODUCTS**

13
14 **2.1. CHANGE ORDER REQUEST FORM**

- 15 A. The COR form is located on the Project Management Web Site. The GC shall click the link in the left margin of
16 the project web site opening a new form. Follow additional instructions below in the execution section for filling
17 out the form.
18

19 **PART 3 - EXECUTION**

20
21 **3.1. ESTABLISHING A CHANGE ORDER REQUEST**

- 22 A. Upon receipt of a Construction Bulletin (CB) where the GC believes a significant change in contract scope
23 warrants the submittal of a COR the GC shall do all of the following within ten (10) working days after receipt of
24 the CB:
25 1. Review the CB with all necessary trades and sub-contractors required by the change in scope.
26 a. Additions or deletions to the contract scope shall be as directed within the CB.
27 b. Additions or deletions of labor and materials shall be determined by the GC based on the
28 directives of the CB.
29 2. Assemble all required back-up documentation for additions and deletions of materials, labor and other
30 related contract costs as previously outlined in this specification.
31 3. Submit a COR request form on the Project Management Web Site.
32 B. Submitting a COR does not obligate the GC to complete the work associated with the COR nor does it obligate
33 the Owner to approve the COR as a change to the contract.
34

35 **3.2. SUBMIT A CHANGE ORDER REQUEST FORM**

- 36 A. This specification shall provide a subject overview only. In depth instructions shall be provided to the awarded
37 Contractor in a PDF Instructional Manual.
38 B. The GC shall select the "Submit a COR" link on the Project Management Web Site.
39 C. The software will open a new COR form and the GC shall provide all of the following information:
40 1. DO NOT perform any calculations on this worksheet, only provide the raw data as requested below. All
41 calculations, totals, and markups shall be computed as described within this specification.
42 2. Provide a summary description of the COR request, and justification for any requested time extension to
43 the contract, indicate the number of calendar days being requested for the extension and add any
44 attachments to the form as needed.
45 3. Provide all GC self performance data including all of the following:
46 a. Materials description, quantities, and unit costs.
47 b. Labor hours and rates for all Foremen, Journeymen, and Apprentices by trade.
48 c. Equipment descriptions, quantities, unit costs and rates.
49 4. Provide all Sub-contractor data including all of the following:
50 a. Materials description, quantities, and unit costs.
51 b. Labor hours and rates for all Foremen, Journeymen, and Apprentices by trade.
52 c. Equipment descriptions, quantities, unit costs and rates.
53 5. Ensure all calculations performed by the form have been completed correctly. Contact the CPM directly
54 if you suspect an error before hitting the save button.
55 C. At any time after creating a COR you must at a minimum click "Save as Draft" to save your work.
56 D. When all data has been entered and verified click on the "Submit COR" button. This will kick off the COR Review
57 and Approval process.
58

1 **3.3. CHANGE ORDER REQUEST REVIEW, APPROVAL, AND PROCESSING**

- 2 A. The PA and CPM shall review all CORs submitted by the GC.
3 1. Additional consulting staff and city staff having knowledge of the components of the COR shall review
4 and advise the PA and CPM as to the accuracy of the items, quantities, and associated costs of the COR as
5 directed by the CB.
6 2. The CPM shall review the COR with the Owner.
7 B. If required the PA and CPM, shall in good faith, further negotiate the COR with the GC as necessary. All
8 amendments to any COR shall be documented within the Project Management Web Site software.
9 C. After final review of the COR the CPM and Owner may accept the COR.
10 D. The CPM shall prepare the COR in the form of an official Board of Public Works Change Order for final review and
11 approval as outlined in Section 01 26 63 Change Order (CO).
12 E. The GC shall not act upon any accepted COR until it has received final approval through the Public Works process
13 as an official CO to the Work unless instructed to do so by the CPM. Proceeding without the final approval of a
14 fully authorized Change Order is at the GC's own risk.
15

16 **3.4. EMERGENCY CHANGE ORDER REQUEST**

- 17 A. In the event Work is required due to an emergency as described in the Contract Documents, the GC must
18 request an equitable adjustment as soon as practicable, and in no case later than ten (10) working days of the
19 commencement of such emergency.
20 B. The GC shall provide full documentation of all labor, materials and equipment used during the period of
21 emergency as part of the COR submittal.
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25

END OF SECTION

**SECTION 01 26 63
CHANGE ORDER (CO)**

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2
3
4 PART 1 – GENERAL 1
5 1.1. SUMMARY 1
6 1.2. RELATED SPECIFICATION SECTIONS 1
7 1.3. BOARD OF PUBLIC WORKS PROCEDURE 1
8 PART 2 – PRODUCTS..... 2
9 2.1. CHANGE ORDER FORM..... 2
10 PART 3 - EXECUTION 2
11 3.1. PREPARATION OF THE CHANGE ORDER 2
12 3.2. EXECUTION OF THE CHANGE ORDER 2
13

PART 1 – GENERAL

1.1. SUMMARY

- 17 A. Except in cases of emergency, no changes in the Work required by the Contract Documents may be made
18 by the General Contractor (GC) without having prior approval of the City Project Manager (CPM).
19 B. The City may at any time, without invalidating the Contract and without Notice to Sureties, order changes in
20 the Work by written Change Order. Such changes may include additions and/or deletions.
21 C. The Change Order (CO) is a Board of Public Works (BPW) form that is reviewed and approved by a specific
22 process.
23 D. The CO form is typically made up of multiple Change Order Requests (CORs) and/or Bid Items as appropriate
24 depending on the type of project and how the contract was bid.
25 E. All CO documentation shall be processed through the Construction Administration-Change Order Library and
26 digital workflow on the Project Management Web Site (PMWS).
27

1.2. RELATED SPECIFICATION SECTIONS

- 28
29 A. Section 01 26 13 Request for Information (RFI)
30 B. Section 01 26 46 Construction Bulletin (CB)
31 C. Section 01 26 63 Change Order Request (COR)
32 D. Section 01 31 23 Project Management Web Site
33

1.3. BOARD OF PUBLIC WORKS PROCEDURE

- 34
35 A. The Board of Public Works has a very explicit procedure for the review and approval of all change orders
36 associated with any Public Works Contract as follows:
37 1. The Supervisory Chain of the CPM shall review and approve any CO under \$10,000 provided it does not
38 include either of the following:
39 a. The CO does not request a time extension to the contract.
40 b. The CO does not cause the contract contingency sum to be exceeded.
41 2. The Board of Public Works shall review and approve any CO that requires any of the following:
42 a. Any CO over \$10,000.
43 b. Any CO requesting a time extension to the contract regardless of the monetary value of the CO.
44 c. Any CO that that causes the contract contingency sum to be exceeded.
45 B. The Board of Public Works generally meets every other week and only once in August and December. The GC is
46 cautioned that, under normal scheduling, a CO requiring a BPW review will take a minimum of two (2) weeks to
47 achieve final approval.
48 1. The City shall not be responsible for additional delays to the Work caused by the scheduling constraints
49 of the Board of Public Works.
50 C. ***SPECIAL NOTE:*** The GC is cautioned to never proceed unless told to do so by the CPM. Only in rare instances
51 may the CPM give a written notice to proceed on a COR without an approved CO. Proceeding without the
52 written notice of the CPM or an approved CO is at the GC’s own risk.
53

1 **PART 2 – PRODUCTS**

2
3 **2.1. CHANGE ORDER FORM**

- 4 A. The CO form is located on the Project Management Web Site. The CPM shall click the link in the left margin of
5 the project web site opening a new form. Project information is pre-loaded, the CPM only needs to enter
6 information and make attachments as needed to complete the form.
7

8 **PART 3 - EXECUTION**

9
10 **3.1. PREPARATION OF THE CHANGE ORDER**

- 11 A. The CPM shall prepare the required CO forms in the Construction Administration-Change Order Library on the
12 Project Management Web Site as follows:
13 1. Provide information for all contract information.
14 2. Provide a general description of the items described within the change order.
15 3. Provide detailed information for each Item on the CO form. At the option of the CPM he/she may include
16 multiple Change Order Requests each as their own item.
17 4. Provide required pricing and accounting information as needed for the item.
18 5. Insert attachments of contractor/architect provided information that clarifies and quantifies the CO.
19 Attachments may include but not be limited to material lists, estimated labor, revised details or
20 specifications, and other documents that may be related to the requested change.
21 6. Save the final version of the completed CO.
22

23 **3.2. EXECUTION OF THE CHANGE ORDER**

- 24 A. Upon saving the CO as described in section 3.1 above the software associated with the Project Management
25 Web Site shall notify the GC that the CO has been drafted and is ready for review. The GC shall do the following:
26 1. Open the appropriate CO form in the Construction Administration-Change Order Library and review all
27 items on the form.
28 2. The GC shall notify the CPM immediately of any errors or discrepancies on the form and shall not sign or
29 save it.
30 a. The CPM shall make any corrections as needed, re-save the form, and notify the GC.
31 3. If/when the GC concurs with the CO form as drafted the GC shall digitally sign the form and click SAVE.
32 B. After the GC digitally signs/saves the CO it shall be routed through the Project Management Web Site for
33 additional review and/or approvals. The CPM shall do the following:
34 1. Monitor the review process to ensure the software is working properly at each review step.
35 2. Ensure that proper BPW procedures are executed as needed by the CO approval process.
36 a. Schedule the CO on the next available BPW agenda if required.
37 i. Attend the BPW meeting to speak on the CO to board members and answer questions.
38 ii. The GC and/or PA may be required to attend the BPW meeting to address specific
39 information as it relates to the Work and/or materials associated with the CO.
40 3. Monitor final approval and distribution of the CO.
41 4. Notify the GC that the CO has been completed.
42 5. Ensure that the CO is posted to the next Public Works payment schedule.
43 6. Verify that the GC's next Progress Payment-Schedule of Values show the CO as part of the contract sum.
44 C. Upon final approval of the CO the GC may proceed with executing the Work associated with the CO.
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END OF SECTION

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SECTION 02 41 16
STRUCTURE DEMOLITION

PART 1 - GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for demolition and removal of a building attached to a structure to remain, sidewalks and such features as required in these specifications and on the drawings. Included are the following topics:

PART 1 - GENERAL

- Scope
- Related Documents
- Materials Ownership
- Pre-Demolition Meeting
- Submittals
- Field Conditions
- Coordination

PART 2 – PRODUCTS

- Performance Requirements
- Soil Materials

PART 3 - EXECUTION

- Examination
- Utility Services and Mechanical/electrical Systems
- Protection
- Demolition, General
- Demolition by Mechanical Means
- Site Restoration
- Repairs
- Disposal of Demolished Materials
- Cleaning

RELATED DOCUMENTS

Applicable provisions of Division 1 shall govern this Section.

MATERIALS OWNERSHIP

Unless otherwise indicated, demolition waste becomes property of Contractor.

Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

Carefully salvage in a manner to prevent damage and promptly return to Owner.

PRE-DEMOLITION MEETING

Pre-demolition Conference: Conduct conference at Project site

Inspect and discuss condition of construction to be demolished.

Review and finalize building demolition schedule and verify availability of demolition personnel, equipment, and facilities needed to make progress and avoid delays.

Review and finalize site and adjacent building protection requirements.

SUBMITTALS

Adjacent Buildings: Detail special measures proposed to protect adjacent buildings to remain.

1 Schedule of Building Demolition Activities: Indicate the following:

2
3 Detailed sequence of demolition work, with starting and ending dates for each activity.

4
5 Temporary interruption of utility services.

6
7 Shutoff and capping or re-routing of utility services.

8
9 Pre-Demolition Photographs or Video: Show existing conditions of adjoining construction and site improvements,
10 including finish surfaces, that might be misconstrued as damage caused by demolition operations.

11
12 Inventory: Submit a list of items that have been removed and salvaged.

13
14 **FIELD CONDITIONS**

15 Buildings to be demolished will be vacated and their use discontinued before start of the Work.

16
17 Buildings immediately adjacent to demolition area will be sporadically occupied. Coordinate building demolition so
18 sporadic operations of occupied buildings will not be disrupted.

19
20 Provide not less than 72 hours' notice of activities that will affect operations of adjacent occupied buildings.

21
22 Maintain access to existing driveways, walkways, exits, and other facilities used by occupants of adjacent
23 buildings.

24
25 Do not close or obstruct driveways, walkways, exits, or other facilities used by occupants of adjacent
26 buildings without written permission from authorities having jurisdiction.

27
28 Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

29
30 Before building demolition, Owner will remove the following items:

31
32 Bronze gates, picnic tables and gardening equipment

33
34 Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

35
36 If materials suspected of containing hazardous materials are encountered, do not disturb; immediately noti-
37 fy Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

38
39 On-site storage or sale of removed items or materials is not permitted.

40
41 **COORDINATION**

42 Coordinate with the City of Madison and Madison Gas & Electric for the temporary disconnect of adjacent gas line.

43
44 The City of Madison will arrange for the relocation of the gas meter.

45
46
47 **PART 2 - PRODUCTS**

48
49 **PERFORMANCE REQUIREMENTS**

50 Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Com-
51 ply with hauling and disposal regulations of authorities having jurisdiction.

52
53 Standards: Comply with ASSE A10.6 and NFPA 241.

54
55 **SOIL MATERIALS**

56 General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.

1 Satisfactory Soils: Soil Classification according to ASTM D 2487; free of rock or gravel larger than 3 inches (75
2 mm) in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
3
4
5

6 **PART 3 - EXECUTION**

7 **EXAMINATION**

8 The City assumes no responsibility for the condition of any building at any time, and no guarantee is made or im-
9 plied that any building will remain in the condition the bidder finds it when the building is examined incident to pre-
10 paring the bid.

11 The Contractor shall procure all permits necessary for razing and removing buildings.

12 The razing of buildings and the removal of the materials thereof shall be performed in a safe manner and in compli-
13 ance with the requirements of the Wisconsin Department of Industry, Labor and Human Relations and any applica-
14 ble City ordinances.

15 Where hazardous conditions are created incidental to the contract operations, the Contractor shall furnish, erect and
16 maintain suitable barricades to protect and safeguard the public.

17 Verify that utilities have been disconnected and capped before starting demolition operations.

18 All operation necessary for the removal of any existing structure, which might endanger the building repair work,
19 shall be completed prior to the construction of the such work.

20 **UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS**

21 Existing Utilities to be Disconnected: Locate, identify, disconnect, and seal or cap off utilities serving buildings and
22 structures to be demolished.

23 Owner will arrange to shut off utilities when requested by Contractor.

24 If removal, relocation, or abandonment of utility services will affect adjacent occupied buildings, then pro-
25 vide temporary utilities that bypass buildings and structures to be demolished and that maintain continuity
26 of service to other buildings and structures.

27 Cut off pipe or conduit a minimum of 24 inches (610 mm) below grade. Cap, valve, or plug and seal re-
28 maining portion of pipe or conduit after bypassing according to requirements of authorities having jurisdic-
29 tion.

30 Do not start demolition work until utility disconnecting and sealing have been completed and verified in
31 writing.

32 **PROTECTION**

33 Existing Facilities: Protect adjacent driveways, parking lots, walkways, building entries, and other building facilities
34 during demolition operations. Maintain exits from existing buildings.

35 Existing Utilities to Remain: Maintain utility services to remain and protect from damage during demolition opera-
36 tions.

37 Do not interrupt existing utilities serving adjacent occupied or operating facilities unless authorized in writ-
38 ing by Owner and authorities having jurisdiction.

39 Provide temporary services during interruptions to existing utilities, as acceptable to Owner and authorities
40 having jurisdiction.

1 Provide at least 72 hours' notice to occupants of affected buildings if shutdown of service is required
2 during changeover.
3

4 Temporary Protection: Erect temporary protection, such as barrier walls and fences where required by authorities
5 having jurisdiction.
6

7 Protect adjacent buildings and facilities from damage due to demolition activities.
8

9 Protect existing site improvements, appurtenances, and landscaping to remain.
10

11 Erect a plainly visible fence around drip line of individual trees or around perimeter drip line of groups of
12 trees to remain.
13

14 Provide temporary barricades and other protection required to prevent injury to people and damage to adja-
15 cent buildings and facilities to remain.
16

17 Remove temporary barriers and protections where hazards no longer exist. Where open excavations or other hazard-
18 ous conditions remain, leave temporary barriers and protections in place.
19

20 **DEMOLITION, GENERAL**

21 Site Access and Temporary Controls: Conduct building demolition and debris-removal operations to ensure mini-
22 mum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
23

24 Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without
25 permission from Owner and authorities having jurisdiction.
26

27 Use water mist and other suitable methods to limit spread of dust and dirt. Comply with governing envi-
28 ronmental-protection regulations. Do not use water when it may damage adjacent construction or create
29 hazardous or objectionable conditions, such as ice, flooding, and pollution.
30

31 Explosives: Use of explosives is not permitted.
32

33 **DEMOLITION BY MECHANICAL MEANS**

34 Proceed with demolition of structural framing members systematically, from higher to lower level. Complete build-
35 ing demolition operations above each floor or tier before disturbing supporting members on the next lower level.
36

37 Remove debris from elevated portions of the building by chute, hoist, or other device that will convey debris to
38 grade level in a controlled descent.
39

40 Remove structural framing members and lower to ground by method suitable to minimize ground impact
41 and dust generation.
42

43 Below-Grade Construction: Demolish foundation walls and other below-grade construction.
44

45 Remove below-grade construction, including basements, foundation walls, and footings, completely.
46

47 Existing Utilities: Demolish and remove existing utilities and below-grade utility structures.
48

49 **SITE RESTORATION**

50 Below-Grade Areas: Completely fill below-grade areas and voids resulting from building demolition operations with
51 satisfactory soil materials.

52 Place in layers not more than twelve (12) inches in thickness. Each layer shall be thoroughly compacted by
53 means of approved tampers, rollers or vibrators.
54

55 Water shall not be used to expedite settlement of backfill except with the approval of the City Engineer;
56 this provision shall not be construed to require an excavation to be dewatered before placing backfill, if

1 backfilling can be performed in such a manner as to displace the water or prevent its entrapment in the
2 backfill.

3
4 Backfilling shall be made to the elevation of the natural ground, the proposed finished earth subgrade or
5 finished slopes, as may be necessary die to the location of the removed structure.

6
7 Site Grading: Uniformly rough grade area of demolished construction to a smooth surface, free from irregular sur-
8 face changes. Provide a smooth transition between adjacent existing grades and new grades.

9
10 **REPAIRS**

11 Promptly repair damage to adjacent buildings caused by demolition operations.

12
13 **DISPOSAL OF DEMOLISHED MATERIALS**

14 Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and
15 demolition waste landfill acceptable to authorities having jurisdiction.

16
17 Do not allow demolished materials to accumulate on-site.

18
19 Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

20
21 Do not burn demolished materials.

22
23 **CLEANING**

24 Clean adjacent structures and improvements of dust, dirt, and debris caused by building demolition operations. Re-
25 turn adjacent areas to condition existing before building demolition operations began.

26
27 Clean roadways of debris caused by debris transport.

28
29 **END OF SECTION**

30 **02 41 16**

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SECTION 04 01 40
STONE ASSEMBLIES AND RESTORATION

PART 1 - GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment and supervision necessary to provide for the repair and cleaning of stonework, providing new stone to match existing, rebuilding parapet walls and such features as required in these specifications and on the drawings. Included are the following topics:

PART 1 – GENERAL

- Scope
- Related Documents
- Quality Assurance
- Submittals
- Substitutions
- Delivery, Storage, and Handling
- Project Conditions
- Attic Stock

PART 2 – MATERIALS

- Limestone
- Mortar Materials
- Cleaning Materials
- Joint Sealant
- Miscellaneous Materials

PART 3 – EXECUTION

- Survey
- Protection
- Parapet Dismantling
- Fabrication of Stone
- Parapet Reconstruction
- Dutchman Repair
- Stone Plug Repair
- Redressing Stone
- Crack Injection
- Stone Patching
- Pointing of Mortar Joints in Stone
- Adjusting Stone Work
- Cleaning Stone, General
- Excess Materials and Waste
- Field Quality Control

RELATED DOCUMENTS

Applicable provisions of Division 1 shall govern work under this Section

Section 07 53 23 EPDM Roofing

QUALITY ASSURANCE

Pre-Construction Conference:

Prior to beginning the work of this Section, the General Contractor and all Masonry Sub-contractors shall convene a meeting with Architect and Owner's Representative(s) to review the requirements of the Quality Assurance Plan, installation procedures and all job conditions and processes.

1 Quality Assurance Plan:

2 Prior to beginning Work, submit a written Quality Assurance Plan to Architect and Owner for approval. Allow 2
3 weeks for review and approval process. Do not proceed without written approval of plan. The Owner's Quality
4 Control Representative and the Architect shall review work on a regular basis for conformance with the approved
5 Quality Assurance Plan. Quality Assurance Plan shall, at a minimum, include the following items:

6
7 Describe the method of mobilization and access to work areas.

8
9 Describe the methods for surveying original layout and tagging methods of original stones for rebuilding stone
10 masonry parapets.

11
12 Describe the tools, methods and approaches to cleaning the cement-based mortar smears, sealant removal and
13 old patching materials from the stone faces.

14
15 Describe the tools, methods and approaches to cleaning various forms of organic material from the stone faces.

16
17 Describe, in detail, the matching procedures relating to techniques and tools proposed for stone redressing.
18

19 Stone Restoration Firm Qualifications:

20 Engage an experienced masonry restoration firm to perform work in this section. The firm shall have completed
21 work similar in material, design, and extent to that indicated for this Project and shall demonstrate a record of suc-
22 cessful in-service performance. Proven implementation of the Secretary of the Interior's Standards for Rehabilita-
23 tion: Preservation Briefs #1 and #2 and compliance with TMS 402-08/ACI 530-08/ASCE 5-08 are required.
24

25 Work must be performed by a firm having not less than 10 years DOCUMENTED successful experience in compa-
26 rable masonry restoration projects and employing skilled personnel in the restoration process and operations indicat-
27 ed. Engage an experienced masonry restoration and cleaning firm to perform work of this Section. Firm shall have
28 completed work similar in material, design, and extent to that indicated for this Project with a record of successful
29 in-service performance.
30

31 At Contractor's option, work may be divided between two specialist firms: one for cleaning work and one for repair
32 work.
33

34 Field Supervision:

35 Restoration specialist firms shall maintain experienced full-time supervisors on Project site during times that stone
36 tagging, dismantling, restoration, replacement and reinstallation are in progress. A single individual shall be respon-
37 sible for supervising the stone masonry restoration work throughout the duration of the Project. Supervisors shall
38 not be changed during Project except for causes beyond control of restoration specialist firm.
39

40 Source Limitations for Stone: Obtain stone from one quarry whether specified in this Section or in another Section
41 of the Specifications with resources to provide materials of consistent quality in appearance and physical properties.
42

43 Mortar Mixture Testing on Site: Prior to any installation of mortar the Masonry Restoration Contractor shall allow
44 the architect to view in-person the mixing of a mortar batch. Architect shall review the consistency and color in
45 relationship to the approved samples.
46

47 Stone Cleaning Mock-ups: All stone cleaning submittals as noted herein shall be submitted and approved prior to
48 proceeding with mockup. Prior to start of cleaning, mask-off five sample panel areas on existing wall as directed by
49 Architect. Mock-ups shall demonstrate aesthetic effects and execution; obtain Architect's acceptance of both quali-
50 fiers before proceeding with the Work. Mock-ups shall include:
51

52 Each sample panel shall be approximately 36 inches high by 36 inches wide.

53
54 Prepare mockups on existing balustrade under same weather conditions to be expected during remainder of
55 the Work.
56

1 Demonstrate to the Architect the methods and quality of workmanship to be performed for five products
2 list below.

3
4 Clean each panel with a different product

5
6 Architect shall review mock-ups and choose one cleaning product

7
8 Receive written approval from Architect prior to cleaning the balance of the Work

9
10 Retain acceptable panels in undisturbed condition, suitably marked, during restoration as a standard for
11 judging completed work.

12
13 **Stone Repair Mockups:**

14 All stone repair related submittals as noted herein shall be submitted and approved prior to proceeding with mock-
15 up. Consult the Architect for placement, size, and location of mock-ups. Prepare mockups on existing walls under
16 same weather conditions to be expected during remainder of the Work. Mock-ups shall demonstrate aesthetic ef-
17 fects and execution; obtain Architect's acceptance of both qualifiers before proceeding with the Work. Mock-ups
18 shall include:

19
20 **Surface Stone Repair:**

21 Include one stone on which to demonstrate proficiency in repairing with new patching material. Patch two
22 stones showing 2 different finished tooled samples, which match existing.

23
24 Include redressing of at least 3 stones to demonstrate proficiency in scoring stones to match existing stone
25 texture.

26
27 **Dutchman Repair:**

28 Undertake Dutchman repairs in 2 locations, including one that is only cut and prepared for application.

29 Demonstrate to the Architect the quality of the stone insert, as well as the workmanship and techniques to
30 be performed in the Dutchman repairs. Do not proceed with Dutchman repairs until your technique has
31 been approved.

32
33 **Crack Repair:**

34 Repair one crack, one foot in length, using dispersed hydrated lime injection technique with spachal surface
35 treatment.

36
37 **SUBMITTALS**

38 Submit the following items in time to prevent delay of work and to allow adequate time for review of submittals.
39 Do not order materials or start the execution of the Work before receiving all written approval.

40
41 **Product Data:** For each type of product indicated. Include recommendations for application and use. Include test
42 data substantiating that products comply with requirements. Submit all Material Safety Data Sheets (MSDS) as ap-
43 propriate. For stone varieties proposed for use on Project, include test data indicating compliance with physical
44 properties specified.

45
46 Submit digital photographic documentation proposed procedures.

47
48 **Quality Assurance Plan:**

49 Submit written plan as outlined in the Quality Assurance Section for the work of this Section.

50
51 **Samples for Verification:** Before erecting mockup, submit samples of the following:

52 Include at least three samples of each type of stone. Samples shall exhibit the extremes of the full range of
53 color and other visual characteristics expected in completed Work. Samples will establish the standard by
54 which stone provided will be judged.

1 Stone Patching Material: Provide at least two samples for patching material that will match the existing
2 stone. Patching shall match existing stone; therefore, multiple submittals are expected.

3
4 Repair Anchors: Provide 3 samples of each type

5
6 Mesh Weep Holes/Vents: in color selected from manufacturer's standards

7
8 Mortar Mix: Provide 2 samples (from those selected by architect) in 6 inches long by 1/2-inch-wide alumi-
9 num or plastic channels.

10
11 **Qualification Data for Stone Restoration Firm:**

12 The firm must submit written documentation of at least 10 individual projects completed in the last 15 years where
13 they have been the primary masonry specialist. The list must include projects that are similar in size, age and mate-
14 rial and they must be projects where the firm has used similar materials as specified herein. Include the following:

- 15 1. Name, address and phone numbers of Client
- 16 2. Name and address of Project
- 17 3. Date of Project completion
- 18 4. Age of building and whether The Secretary of the Interior's Standards for Historic Preservation were re-
19 quired to be followed.
- 20 5. Size, in terms of square feet of stone masonry restored, of the Project
- 21 6. Name and list of materials and the manufacturers used on Project

22
23
24 **Qualification Data for Field Supervisor:** The firm must submit written documentation of at least 10 projects that the
25 Field Supervisor has supervised. The projects can include those that were completed under the employment of a
26 different firm. The list must include projects that are similar in size, age and material. All mason work must be per-
27 formed and supervised by craftspeople's that are familiar with historic mortar formulations, curing conditions and
28 performance characteristics. Include the following:

- 29 1. Name, address and phone numbers of Client
- 30 2. Name and address of Project
- 31 3. Date of Project completion
- 32 4. Size, in terms of square feet of stone masonry restored, of the Project
- 33 5. Name and list of materials and the manufacturers used on Project
- 34 6. Name of firm the work was performed under, if different than submitting firm.
- 35 7. Provide proof of historic mortar knowledge to the Architect by submitting a certificate from a U.S. Her-
36 itage Group Lime Mortar Workshop or similar workshop course.

37
38 **SUBSTITUTIONS**

39 If alternative methods and materials to those indicated are proposed for any phase of restoration work, provide writ-
40 ten description, and program of testing to demonstrate effectiveness for use on this project. Provide documentation
41 showing compliance with the requirements for substitutions and the following information:

42
43 Coordination information, including a list of changes needed to other work that will be necessary to ac-
44 commodate the substitution.

45 Provide a comparison of the substitution with the specified products and methods, including performance,
46 weight, size, durability, and visual effect.

47
48 Certification that the substitution conforms to the contract documents and is appropriate for the applications
49 indicated. Material substitution requests must be accompanied by independent laboratory test reports from
50 a lab designated by the architect to establish equivalent performance levels and specification compliance.
51 The submitting party shall pay for testing.

52
53 **DELIVERY, STORAGE, AND HANDLING**

54 Deliver materials to Project site in manufacturer's original and unopened containers, labeled with manufacturer's
55 name and type of products.

1 Store cementitious materials and salvaged stone on elevated platforms, under cover, and in a dry location. Do not
2 use cementitious materials that have become damp.

3
4 Protect restoration materials during storage and construction from wetting by rain, snow or ground water, and from
5 staining or intermixture with earth or other types of materials.

6
7 Protect mortar and other materials from deterioration by moisture and temperature. Store in a dry location or in wa-
8 terproof containers. Keep containers tightly closed and away from open flames. Protect liquid components from
9 freezing.

10
11 Comply with manufacturer's recommendations for minimum and maximum temperature requirements for storage.

12
13 Comply with the manufacturers written specifications and recommendations for application, and curing of mortars
14 and patching materials.

15 **PROJECT CONDITIONS**

16
17 Do not perform any masonry work unless air temperatures are between 40 degrees Fahrenheit (10 degrees Celsius)
18 and 95 degrees Fahrenheit (32 degrees Celsius) and will remain so for at least 120 hours after completion of the
19 work. To prevent premature evaporation of the mortar, phase masonry work during hot weather by completing the
20 process on the shady side of the building or by scheduling installation of materials during cooler evening hours.

21 Do not use frozen materials or materials mixed or coated with ice or frost. Do not lower the freezing point of mortar
22 by the use of admixtures or anti-freeze agents, and do not use chlorides in the mortar.

23
24 Prevent mortar from staining the face of the masonry or other surfaces to be left exposed. Immediately remove all
25 mortar that comes in contact with any surface.

26
27 Cover partially completed work when work is not in progress.

28
29 Protect sills, ledges and projections from droppings.

30
31 Protect persons, motor vehicles, building site and surrounding buildings from injury resulting from masonry restora-
32 tion work.

33
34 Cold-Weather Requirement for masonry repair and mortar: Follow ACSI 530 and manufacturers written installation
35 requirements.

36
37 Hot-Weather Requirements: Protect masonry repair and mortar-joint pointing when temperature and humidity con-
38 ditions produce excessive evaporation of water. Provide artificial shade and wind breaks and use cooled materials as
39 required. Do not apply mortar to substrates with temperatures of 90 degrees Fahrenheit and above.

40
41 Damage occurring to the building as a result of work of this section of Contractor's failure to protect against such
42 damage shall be the Contractor's responsibility. The contractor shall restore damaged areas to the complete satisfac-
43 tion of the Architect at no expense to the Owner.

44
45 Protection of Stone Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheet-
46 ing at end of each day's work. Cover partially completed stone masonry when construction is not in progress. Ex-
47 tend cover a minimum of 24 inches (600 mm) down both sides and hold cover securely in place.

48 **ATTIC STOCK**

49 Provide the following products and amounts for Owner attic stock:

50
51
52 Masonry Cleaners: At least 2 unopened gallon containers of approved cleaner

53
54 Pre-mixed Mortar: At least 2 sealed 5 gallon containers of approved mortar

55
56 Stone Patching Material: At least 1 unopened gallon container of approved patching material

1 **PART 2 - MATERIALS**

2
3 **LIMESTONE**

4 Limestone: Comply with ASTM C 568.

5
6 Products: Indiana oolitic limestone quarried in Lawrence, Monroe, or Owen Counties, Indiana.

7
8 Classification: II Medium-Density

9
10 Description: Oolitic limestone.

11
12 Indiana Oolitic Limestone Grade and Color: Select; Full Color Blend, according to grade and color classifica-
13 tion established by ILI.

14
15 Match existing limestone at building for color, finish, and other stone characteristics relating to aesthetic effects.

16
17 **MORTAR MATERIALS**

18 Mortar shall be prepared and placed in accordance with the Department of the Interior National Park Service Stand-
19 ards for Rehabilitation.

20
21 The mortar shall be a Pozzolantic Hydraulic Lime mortar with a compressive strength not exceeding 750 psi. Mortar
22 shall match the original in color, grain size and texture unless otherwise directed. The compressive strength of the
23 mortar shall be equal or less than the compressive strength of the original mortar and surrounding stone. The re-
24 placement mortar shall contain approximately the same ingredient proportions of the original mortar, unless directed
25 otherwise by the architect.

26
27 The mortar mix shall be one or more of the following:

28
29 Pre-mixed mortars.

30 The contractor has the option to purchase a pre-blended mortar mix with pigment and sand added.

31
32 Site mixed mortars.

33 -Pozzolantic Hydraulic Lime (PHL):

34 "Graymont Hydraulic Pozzolantic Lime 5.0." Available from: Graymont P.O.
35 Box 158, Genoa, OH 43430 419-855-8682.

36 -Manufacturer shall maintain quality control procedures and maintain records of production. Manufacturer to pro-
37 vide samples of proposed materials for mock up panels at the site. Hydraulic Lime shall comply with ASTM C
38 1707.

39
40 -Sand for mixed mortar:

41 Mix at a ratio of 3 parts sand to 1 part mortar by volume. Sand shall be clean and uncontaminated by clay/silt and
42 shall match color and gradation or original sand. At least 4 grades of sand in mix, from 0.150 to 0.075 may be
43 blended to achieve the color, gradation, and inclusions match. If necessary to improve workability, sand may be
44 amended to improve gradation. The gradation standards of ASTM C144 may be used as a guideline, but the charac-
45 teristics of the original mortar shall supersede.

46
47 -Water shall be clean, clear, and potable.

48
49 -Pigments shall be synthetic or natural, alkali, resistant, iron oxide pigments as required to achieve the desired color.
50 The weight of pigment shall not exceed 10 per cent of the weight of the binder.

51
52 -Prior to mixing any mortar, the contractor shall demonstrate quality controls measures are in place to ensure that
53 the site mixed mortar is consistent in color and texture throughout the entire structure.

54
55 Color: To match Owner's sample

1 Mixing of individual mortar ingredients at the construction site is not permitted.

2
3 **CLEANING MATERIALS**

4 It is the goal of this project to use the least harmful cleaning solution on the existing stone. The contractor shall per-
5 form each cleaning treatment mock-ups (as described in Quality Assurance) in successive order; stopping at the
6 treatment that best suits each foreign substance removal as determined by the architect.

7
8 First Treatment - White Vinegar and Water: Prepare mixtures of vinegar and water with ratios of 1 to 4 through 1 to
9 1 for testing on mock up.

10
11 Second Treatment - Job-Mixed Detergent Solution: Solution prepared by mixing 2 cups of tetra sodium polyphos-
12 phate (TSPP), 1/2 cup of laundry detergent, and 20 quarts of hot water for every 5 gal. of solution required. Test on
13 mock up for suitability for use on this project.

14
15 Hot Potable Water: Heat water to a temperature of 140 to 160 deg F. Heat to 185 to 190 deg F in warm weath-
16 er. Do not use on cold surfaces.

17
18 Third Treatment - Job-Mixed Mold, Mildew, and Algae Remover: Solution prepared by mixing 2 cups of tetra so-
19 dium polyphosphate (TSPP), 5 quarts of 5 percent sodium hypochlorite (bleach), and 15 quarts of hot water for eve-
20 ry 5 gal. of solution required. Test on mock up for suitability for use on this project.

21
22 Hot Potable Water: Heat water to a temperature of 140 to 160 deg F. Heat to 185 to 190 deg F in warm weath-
23 er. Do not use on cold surfaces.

24
25 Fourth Treatment - Nonacidic Liquid Cleaner: Manufacturer's standard mildly alkaline liquid cleaner formulated for
26 removing mold, mildew, and other organic soiling from ordinary building materials, including polished stone, alu-
27 minium, plastics, and wood. Test on mock up for suitability for use on this project.

28 Products:

29 Diedrich Technologies Inc.: Envirestore 100
30 Dumond Chemicals, Inc.; Safe n' Easy Architectural Cleaner/Restorer.
31 American Building Restoration: 801 Heavy Duty Masonry Cleaner
32 ProSoCo; BioWash
33 Cathedral Stone Products: D/2 Biological Cleaner

34
35 Fifth Treatment - Nonacidic Gel Cleaner: Manufacturer's standard gel formulation, with pH between 6 and 9 that
36 contains detergents and chelating agents and is specifically formulated for cleaning masonry surfaces. Test on mock
37 up for suitability for use on this project.

38
39 Products:

40 ProSoCo; Sure Klean 942 Masonry Cleaner.
41 American Building Restoration: Super Bio Strip

42
43 Target Treatment - alkaline paint remover for paint, sealant and caulking removal, solvent-type paint remover for
44 asphalt and tar removal. To be used in select locations as approved by the architect.

45
46 **JOINT SEALANT**

47 Sealant: One component field tintable, non-staining Silicone sealant which complies with TT-S-230C, Class A; ASTM
48 C920, Class 100, Type S, Grade NS. Colors as selected by architect from manufacturer's full range of colors.

49
50 Pecora Corporation: 890FTS
51 Or approved equal

52
53 Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), Preformed, com-
54 pressible, resilient, nonwaxing, nonextruding strips of flexible, nongassing, closed-cell plastic foam nonabsorbent to
55 water and gas. Manufacturer's recommended size, shape and density to control sealant depth and otherwise contrib-

1 ute to producing optimum sealant performance. Rod shall be at least one-third (1/3) larger diameter than width of
2 joint. Color shall match adjacent surface.

3 Dow: "Ethafoam"

4 Williams: "Expand-O-Foam"

5
6 Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing
7 sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion
8 would result in sealant failure. Provide self-adhesive tape where applicable.

10 11 **MISCELLANEOUS MATERIALS**

12 Masonry Patching Compound: Factory-mixed cementitious product that is custom manufactured for patching ma-
13 sonry, is vapor- and water permeable, exhibits low shrinkage, and develops high bond strength to all types of mason-
14 ry.

15
16 Products:

17 Cathedral Stone Products, Inc.; Jahn Restoration Mortar.

18 Edison Coatings, Inc.; Custom System 45.

19 U.S. Heritage Group, Inc; HL15 Heritage Limestone Repair

20
21 Cementitious Crack Filler: An ultrafine super plasticized grout that can be injected into cracks, is suitable for appli-
22 cation to wet or dry cracks, exhibits low shrinkage, and develops high bond strength to all types of stone.

23 Products:

24 Cathedral Stone Products, Inc.; Jahn Injection Grout.

25 Edison Coatings, Inc.; Pump-X 53i.

26 U.S. Heritage Group, Inc.; IG10 Stone and Brick Injection Grout

27
28 Masonry Repair Anchors, Expansion Type: Mechanical fasteners designed for masonry veneer stabilization consist-
29 ing of 1/4-inch- diameter, Type 304 stainless-steel rod with brass expanding shells at each end and water-shedding
30 washer in the middle. Expanding shells shall be designed to provide positive mechanical anchorage to veneer on
31 one end and backup masonry on the other.

32 Products:

33 Dur-O-Wal, a Dayton Superior Company; Mechanical Repair Anchors

34 Blok-Lok, A Hohmann & Barnar Company; Series 500 anchor

37 38 **PART 3 - EXECUTION**

39 40 41 **SURVEY**

42 Prior to dismantling portions of the parapet walls, establish bonding patterns, levels, tagging of stone and coursings.

43
44 Confirm existing joint dimensions at all openings and ensure that those dimensions are maintained when parapets
45 are re-built.

46
47 Establish lines and levels. Protect them from disturbance throughout the course of the Work.

48 49 **PROTECTION**

50 Protect persons, motor vehicles, surrounding surfaces of building being restored, building site, plants, and surround-
51 ing buildings from harm resulting from stone restoration work.

52
53 Erect temporary protective covers over walkways and at points of pedestrian and vehicular entrance and exit that
54 must remain in service during course of restoration and cleaning work.

1 Prevent mortar from staining face of surrounding masonry and other surfaces and immediately remove mortar in
2 contact with exposed masonry and other surfaces.

3 4 **PARAPET DISMANTLING**

5 Before dismantling portions of the parapets, ensure that all stones are tagged and that bonding patterns, levels and
6 coursings are established. In addition, ensure that an adequate storage area for salvaged stone has been erected.

7
8 Provide temporary bracing of masonry where needed during dismantling process.

9
10 Cut out full units from joint to joint

11
12 Carefully remove and salvage cracked but not broken stones.

13
14 Large and medium stones (longer than 7'-0" and/or with a face dimension more than 3 square feet) that are broken
15 in half or in thirds shall be stored together and shall be repaired during reconstruction.

16
17 All stones that are broken in more than three pieces shall be photographically and graphically documented and the
18 documentation submitted to architect for replacement consideration.

19
20 Remove all existing mortar and sealant from all sides of the salvaged stone prior to reinstallation.

21 22 **FABRICATION OF STONE**

23 Carefully inspect stone at quarry or fabrication plant for compliance with requirements for appearance, material, and
24 fabrication. Replace defective units before shipment.

25
26 Select and fabricate replacement stone to match thickness, size, shape, color, absorption rate and tolerances of exist-
27 ing stone it replaces.

28
29 Clean sawed backs of stone to remove rust stains and iron particles

30
31 Finish exposed faces and edges of stone to match approved samples and mockups. Stone surface textures shall
32 match original to the fullest extent possible.

33 34 **PARAPET RECONSTRUCTION**

35 Re-use salvaged stone to the fullest extent possible.

36
37 Repair of stone, as described below, shall be performed at the same time the balustrade is being reconstructed unless
38 approved by architect.

39
40 Verify that installation conditions are satisfactory to receive work of this Section. Do not proceed until unsatisfacto-
41 ry conditions have been corrected. Beginning work constitutes the Contractor's acceptance of conditions as satis-
42 factory.

43
44 Pre-wet masonry: Wet stone which have an Initial rate of Absorption of more than 30 grams per 30 square inches
45 per minute. Use wetting methods to ensure each stone unit is nearly saturated but surface dry when laid.

46
47 Apply mortar to sides of stone and lay units in place so as to eliminate voids in the mortar joints.

48
49 Lay stone units true to lines as required to match bonding patterns, levels, coursings and align with existing stone
50 balustrades at each end. Maintain uniform joint widths except for variations due to different stone sizes and where
51 minor variations are required to maintain bond alignment.

52
53 Installation of replacement stone, carving and other repairs shall match original conditions and level of workman-
54 ship to the fullest extent possible.

1 Provide sealant joints at all skyward joints; mortar joints elsewhere unless otherwise indicated.

2
3 Keep sealant joints free of mortar and other rigid materials.

4
5 Variation from Plumb: For vertical lines and surfaces, do not exceed 1/4 inch in 10 feet (6 mm in 3 m), 3/8 inch in
6 20 feet (10 mm in 6 m), or 1/2 inch in 40 feet (13 mm in 12 m) or more. For external corners, expansion joints, con-
7 trol joints, and other conspicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m) or 1/2 inch in 40 feet (13
8 mm in 12 m) or more.

9
10 Variation from Level: For bed joints and lines of exposed lintels, sills, parapets, horizontal grooves, and other con-
11 spicuous lines, do not exceed 1/4 inch in 20 feet (6 mm in 6 m) or 1/2 inch in 40 feet (13 mm in 12 m) or more.

12 **DUTCHMAN REPAIR**

13 A Dutchman repair is defined as the process of removing damaged stone to a specified depth and inserting a new
14 piece of stone to fit in the opening to create the appearance of a seamless patch.

15
16 This process involves careful and precise removal of select deteriorated stone material, usually in a larger stone. The
17 Dutchman repair will be required on stones with surface face loss which exceeds 2 inches in depth and not more
18 than 1/2 its total face surface area.

19
20 At locations indicated, remove rectangular portions of stone units. Carefully remove stone by making vertical and
21 horizontal saw cuts at face of stone and demolishing corner portion of stone unit to depth required for fitting partial
22 replacement. Make edges of stone at cuts smooth and square to each other and to finished surface.

23
24 Remove loose mortar particles and other debris from surfaces to be bonded and surfaces of adjacent stone units that
25 will receive mortar by cleaning with stiff-fiber brush.

26
27 The new piece must be exactly fitted into place with tolerances of no more than +/-1/16-inch. Supporting rods of
28 stainless steel may be necessary for some Dutchman repairs, depending on the extent of the repair and the location.

29
30 Prior to installing the new piece, the stone shall be carved and refined to match the surface of the adjacent original
31 stone in both profile and finish. This step is necessary to allow a virtually invisible replacement repair. Adhere the
32 repair piece with mortar that has a high content of lime (hydrated or putty) and clamp so the seam may cure.

33 **STONE PLUG REPAIR**

34
35 At locations indicated, remove cylindrical piece of damaged stone by core-drilling perpendicular to stone surface.

36
37 Prepare a replacement plug by core-drilling replacement stone. Use a drill sized to produce a core that will fit into
38 hole with tolerances of no more than +/-1/16-inch.

39
40 Prior to installing the new piece, the stone shall be carved and refined to match the surface of the adjacent original
41 stone in both profile and finish. This step is necessary to allow a virtually invisible replacement repair. Adhere the
42 repair piece with mortar that has a high content of lime (hydrated or putty) and clamp so the seam may cure.

43 **REDRESSING STONE**

44
45 Carefully remove loose stone fragments from face of stone.

46
47 Finish face of stone to match existing texture

48 **CRACK INJECTION**

49
50 General: Comply with cementitious crack filler manufacturer's written instructions.

51
52 Drill 1/4-inch- (6-mm-) diameter, downward-sloping injection holes as follows:

53 Transverse Cracks Less Than 3/8 inch (10 mm) Wide: Drill holes through center of crack at 12 to 18 inch-
54 es (300 to 500 mm) o.c.
55

1 Transverse Cracks More Than 3/8 inch (10 mm) Wide: Drill holes through center of crack at 18 to 36
2 inches (500 to 1000 mm) o.c.

3
4 Clean out drill holes and cracks with compressed air and water. Remove dirt and organic matter, loose material,
5 sealants, and failed crack repair materials.

6
7 Place plastic injection ports in drilled holes and seal face of cracks between injection ports with clay or other
8 nonstaining, removable plugging material. Leave openings at upper ends of cracks for air release.

9
10 Inject cementitious crack filler through ports sequentially, beginning at one end of area and working to opposite end;
11 where possible begin at lower end of injection area and work upward.

12
13 Inject filler until it extrudes from adjacent ports. After port has been injected, plug with clay or other suitable mate-
14 rial and begin injecting filler at adjacent port, repeating process until all ports have been injected.

15
16 Clean cementitious crack filler from face of stone before it sets by scrubbing with water.

17
18 After cementitious crack filler has set, remove injection ports, plugging material, and excess filler. Patch injection
19 holes and surface of cracks as specified.

20 21 **STONE PATCHING**

22 Patch the following stone units: Units indicated to be patched on drawings

23
24 Cut out deteriorated stone and adjacent stone that have begun to deteriorate. Remove additional material so patch
25 will not have feathered edges and will be at least 1/4 inch (6 mm) thick, but not less than recommended by patching
26 compound manufacturer.

27
28 Remove loose particles, soil, debris, oil, and other contaminants from existing stone units at locations to be patched
29 by cleaning with stiff-fiber brush.

30
31 Use salvaged scaled off stone fragments from redressing process to adjust color of pre-mixed patching material as
32 required to match adjacent surfaces.

33
34 Brush-coat stone surfaces with slurry coat of patching compound according to manufacturer's written instructions.

35
36 Place patching compound in layers as recommended by patching compound manufacturer, but not less than 1/4 inch
37 (6 mm) or more than 2 inches (50 mm) thick. Roughen surface of each layer to provide a key for next layer.

38
39 Build patch up 1/4 inch (6 mm) above surrounding stone and carve surface to match adjoining stone after patching
40 compound has hardened.

41
42 Trowel, scrape, or carve surface of patch to match texture and surface plane of surrounding stone. Shape and finish
43 surface before or after curing, as determined by testing, to best match existing stone.

44
45 Keep each layer damp for 72 hours or until patching compound has set.

46
47 Remove and replace patches with hairline cracks or that show separation from stone at edges, and those that do not
48 match adjoining stone in color or texture.

49 50 **POINTING OF MORTAR JOINTS IN STONE**

51 Existing horizontal mortar joints (bed joints) may be raked out using a diamond blade that is narrower than the joint
52 width. The vertical mortar joints (head joints) shall be removed by hand using masonry chisels or pneumatic carv-
53 ing tools powered by air; they SHALL NOT be raked out using rotary power saws.

54

1 All joints (unless otherwise noted) shall be raked back to sound, solid, back up material. All raking out should leave
2 a clean, square face at the back of the joint to provide for maximum contact of pointing mortar with the masonry
3 back up mortar. Shallow or feather edging shall not be permitted.
4

5 Existing mortar joints shall be raked out a minimum depth of 2 1/2 times the width of the existing mortar joints.
6

7 **EXAMPLES:**

8 1/16" Mortar joint needs to be cut out to a depth of 3/16" minimum

9 1/8" Mortar joint needs to be cut out to a depth of 5/16" minimum

10 1/4" Mortar joint needs to be cut out to a depth of 5/8" minimum

11 3/8" Mortar joint needs to be cut out to a depth of 15/16" minimum

12 1/2" Mortar joint needs to be cut out to a depth of 1-1/4" minimum

13 3/4" Mortar joint needs to be cut out to a depth of 1-7/8" minimum

14 1" Mortar joint needs to be cut out to a depth of 2-1/2" minimum

15 Contractor shall not widen the existing masonry joints. The surrounding masonry edges shall not be spalled or
16 chipped in the process of mortar removal. Damage to surrounding stone resulting from rotary blade over running
17 shall not be permitted. Contractor shall replace all stone damaged during mortar removal with replacement units
18 that match the original exactly.

19 Brush, Vacuum, blow out or flush joints with water to remove dirt and loose debris, working from top to bottom of
20 wall.
21

22 Exposed surface of stone adjacent to joint shall be wet prior to re-pointing. Maintain a water sprayer on site at all
23 times during the re-pointing process.
24

25 Walls should be presoaked with water 10 minutes prior to pointing. Walls should be misted with water for duration
26 of at least 3 minutes at the end of the day after initial installation. Mist walls with water and hang dampened burlap
27 covering for 72 hours after initial installation. 3 times per day minimum – morning, noon and night; mist joints and
28 dampen burlap.
29

30 Rinse stone joint with water to remove dust and mortar particles. Time the rinsing application so that at the time of
31 pointing excess water has evaporated or run off. Joint surfaces should be damp but free from standing water.
32

33 The mortar material shall resemble the consistency of brown sugar during installation. This drier consistency ena-
34 bles the material to be tightly packed into the joint and allows for cleaner work and prevents shrinkage cracks as the
35 mortar cures.
36

37 Joints should be pointed in layers or "lifts" where the joints are deeper than 1-1/4 inch. Apply in layers not greater
38 than 1/2 the depth but not more than 1-1/4 inch or until a uniform depth is formed. Compact each layer thoroughly
39 and allow it to become thumbprint hard before applying the next layer.
40

41 **LIFT EXAMPLES:**

42 3/16" joint depth (1/16" joint existing) point in one lift

43 5/16" joint depth (1/8" joint existing) point in one lift

44 5/8" joint depth (1/4" joint existing) point in one lift

45 15/16" joint depth (3/8" joint existing) point in one lift

46 1-1/4" joint depth (1/2" joint existing) point in one lift

47 1-7/8" joint depth (3/4" joint existing) point in two lifts approx.-1" (each)

48 2-1/2" joint depth (1" joint existing) point in three lifts approx. +3/4" (ea.)

49 over 2-3/4 joint depth- point in lifts of no more than 1-1/4" (each)
50

51 When mortar is thumbprint hard the joints shall be finished to match the original historic joint profile.
52

53 Keep mortar from drying out to quickly. Protection from direct sun, high winds for the first 72 hours after installa-
54 tion. Thoroughly soak the wall a minimum of three times per day for the first 3 days. Protect freshly pointed areas
55 with burlap sheeting for the first 48 hours after installation.
56

1 Where re-pointing work precedes overall cleaning of existing masonry, allow mortar to harden at least 30 days before beginning cleaning work.

4 **FINISHING TECHNIQUES**

5 Acceptable finishing techniques for redressing, Dutchmen, substitute stone and crack repair will be defined during the demonstration and test panel work which is part of the training program as approved by the Architect and owner.

8 **ADJUSTING STONE WORK**

9 Remove and replace new stone masonry of the following description:

11 New stone masonry not matching approved samples and mockups.

13 New stone masonry not complying with other requirements indicated.

15 Replace in a manner that result in stone masonry matching approved samples and mockups, complying with other requirements, and showing no evidence of replacement.

18 **CLEANING STONE, GENERAL**

19 Preliminary Cleaning: Before beginning general cleaning, remove extraneous substances that are resistant to cleaning methods being used. Extraneous substances include paint, caulking, sealant, asphalt, and tar.

22 Remove paint and caulking with alkaline paint remover.

24 Repeat application up to two times if needed.

26 Remove asphalt and tar with solvent-type paint remover.

28 Apply only to asphalt and tar by brush without pre-wetting.

30 Allow paint remover to remain on surface for 10 to 30 minutes.

32 Rinse off with water following manufacturer's instructions.

34 Repeat application if needed.

36 Chemical Cleaner Application Methods: Apply chemical cleaners to masonry surfaces to comply with chemical cleaner manufacturer's written instructions; use brush or spray application methods, at Contractor's option. Do not spray apply at pressures exceeding 50 psi. Do not allow chemicals to remain on surface for periods longer than those indicated or recommended by manufacturer.

41 If chemical cleaner is found suitable for use on this project comply with chemical cleaner manufacturer's written instructions for protecting building and other surfaces against damage from exposure to its products. Prevent chemical cleaning solutions from coming into contact with pedestrians, motor vehicles, landscaping, buildings, and other surfaces that could be harmed by such contact.

46 Cover adjacent surfaces with materials that are proven to resist chemical cleaners used unless chemical cleaners being used will not damage adjacent surfaces. Use materials that contain only waterproof, UV-resistant adhesives. Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.

52 Keep wall wet below area being cleaned to prevent streaking from runoff.

54 Do not clean masonry during winds of sufficient force to spread cleaning solutions to unprotected surfaces.

1 Neutralize and collect alkaline wastes for disposal off Owner's property. Apply neutralizing agent and re-
2 peat rinse, if necessary, to produce tested pH of between 6.7 and 7.5.

3
4 Dispose of runoff from cleaning operations by legal means and in a manner that prevents soil erosion, un-
5 dermining of paving and foundations, damage to landscaping, and water penetration into building interiors.

6
7 Rinse off chemical residue and soil by working upward from bottom to top of each treated area at each stage or scaf-
8 fold setting. Periodically during each rinse, test pH of rinse water running off of cleaned area to determine that
9 chemical cleaner is completely removed.

10 After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.

11
12 Removing Plant Growth: Completely remove plant, moss, and shrub growth from masonry surfaces. Carefully re-
13 move plants, creepers, and vegetation by cutting at roots and allowing to dry as long as possible before removal.
14 Remove loose soil and debris from open masonry joints to whatever depth they occur.

15
16 Proceed with cleaning in an orderly manner with material selected from mock up testing; work from top to bottom
17 of each scaffold width and from one end of each elevation to the other.

18
19 Perform each cleaning method indicated in a manner that results in uniform coverage of all surfaces, including cor-
20 ners, moldings, and interstices, and that produces an even effect without streaking or damaging masonry surfaces.
21 Keep area of wall below area of wall being cleaned wet at all times by rinsing with clean water.

22 Use only those cleaning methods approved for each foreign material to be removed.

23 Do not use wire brushes or brushes that are not resistant to the cleaner being used.

24 Do not use plastic-bristle brushes if natural-fiber brushes will resist cleaner being used.

25 Use spray equipment that provides controlled application at volume and pressure indicated, measured at
26 spray tip. Adjust pressure and volume to ensure that cleaning methods do not damage masonry.

27 Equip units with pressure gages.

28 For water spray application, use fan-shaped spray tip that disperses water at an angle of 25 to 50 degrees.

29 For high-pressure water spray application, use fan-shaped spray tip that disperses water at an angle of at
30 least 40 degrees. Do not exceed 800 psi. Keep the tip a minimum of 20 inches from masonry.

31 For heated water spray application, use equipment capable of maintaining temperature between 140 and
32 160 deg F, 185 to 190 deg F in warm weather, at flow rates indicated.

33 In-Progress Cleaning: Clean stone masonry as work progresses. Remove mortar fins and smears before tooling
34 joints.

35 After mortar has fully hardened, thoroughly clean exposed masonry surfaces of excess mortar and foreign matter;
36 use wood scrapers, stiff-nylon or -fiber brushes, and clean water, spray applied at low pressure. Do not use metal
37 scrapers or brushes. Do not use acidic or alkaline cleaners to remove excess mortar

38 Wash adjacent materials and other non-masonry surfaces. Use detergent and soft brushes or cloths.

39 Clean masonry debris from roof; rinse off roof and flush scuppers.

40 Sweep and rake adjacent pavement and grounds to remove masonry debris. Where necessary, pressure wash surfac-
41 es to remove mortar, dust, dirt, and stains.

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END OF SECTION

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SECTION 04 21 13.13
BRICK PANEL SYSTEM

PART 1: GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the fabrication and installation of brick panel system assemblies, fasteners and hardware and such features as required in these specifications and on the drawings. Included are the following topics:

PART 1 - GENERAL

- Scope
- Related Work
- Submittals
- Quality Assurance
- Delivery, Storage and Handling
- Project Conditions

PART 2 – PRODUCTS

- Manufacturers
- Metal Masonry Support Panels
- Clay Masonry Units
- Mortar for thin Brick
- Miscellaneous Materials

PART 3 - EXECUTION

- Examination
- Preparation
- Installation, General
- Flashing
- Weep Holes
- Metal Panel System
- Thin Veneer
- Mortar Installation and Jointing
- Cleaning

RELATED WORK

Applicable provisions of Division 1 shall govern this Section.

SUBMITTALS

Product Data:

Provide brick panel system manufacturer's printed data sufficient to show that all components of brick panel system, including support and fasteners, comply with the specified requirements and with the brick panel system manufacturer's requirements and recommendations for the system type specified; include data for each product used in conjunction with the system. Include test reports and recommendations.

Shop Drawings:

Provide the brick panel system manufacturer's standard details customized for this project for all relevant conditions, including masonry layout, patterns, color arrangement, perimeter conditions, shape requirements, junctions with dissimilar materials, connections, and other related components.

Samples for Verification:

Brick Veneer: Furnish manufacturers standard set of available colors showing extreme variations in color and texture.

Hanging System: 12-inch section of metal panel and fasteners

1 Close-out Submittals:
2 Maintenance Data for sheet metal flashing, trim and accessories
3
4 Warranty: Fully executed warranty with all applicable signatures
5

6 **QUALITY ASSURANCE**

7 Masonry Standard: Comply with TMS 602/ACI 530.1/ASCE 6

8
9 Comply with all applicable codes, regulations, and standards. Where provision of applicable codes, regulations, and
10 standards conflict with requirements of this section the more demanding shall govern.

11
12 Metal Panel: Obtain materials from one manufacturer to ensure compatibility

13
14 Manufacturer's Qualifications:

15 A history of corporate experience with metal supported unit masonry panels.

16
17 Documented qualifications and capabilities that fully describe the ability to provide the required metal
18 panel system and technical support to the Owner.

19
20 At least five (5) years thin brick metal system experience

21
22 Metal panel shall meet or exceed the following performance standards:

23
24 ASTM E-297-99 SHEAR BOND STRENGTH TEST OF MASTIC

25
26 AFG -01 MASTIC and ASTM D 3-498 MASTIC

27
28 ASTM E-72 WINDLOAD TEST OF BUILDING PANELS

29
30 ASTM E 2273-03 PER EG356-2006 WATER DRAINAGE

31
32 ICC-ES EG356 3.1.6 ACCELERATED WEATHERING

33
34 ASTM E96-05 ICC-ES EG356 SECTION 3.1.3 WATER VAPOR TRANSMISSION

35
36 ASTM C1338-02 ICC-ES EG356 SECTION 3.1.1 FUNGI

37
38 Installer Qualifications:

39 Authorized brick panel system installer or proof of a minimum of five years' experience with a related thin
40 masonry support panel system.

41
42 At least one supervisory journeyman who shall be present at all times during execution of work, who shall
43 be thoroughly familiar with design requirement, type of materials being installed, reference standards and
44 other requirements, and who shall direct all work performed at jobsite.

45
46 Material Certificates: Prior to delivery site, submit to Architect/Engineer certificates indicating compliance with the
47 applicable specifications for Thin Brick Grades, Types or Classes included in these specifications.

48
49 Thin Brick Test Reports: Submit test reports substantiating compliance with requirements: Sample and test in
50 accordance with ASTM C 67

51 Testing and reports shall be completed by an independent laboratory

52
53 Test reports for each type of brick shall be submitted to the Architect/Engineer for review

54
55 Thin brick test reports shall indicate:
56

- 1 2-hour cold water absorption
- 2 5-hour boil absorption
- 3 Saturation coefficient
- 4 Initial rate of absorption
- 5 Efflorescence

7 Costs of Tests: Cost of tests shall be borne by the purchaser, unless tests indicate that units do not conform to the
8 requirements of the specifications, in which case cost shall be borne by the seller.

10 Mock-Up Panel: Mock-up panels shall be used to review installation process as well as thin brick and mortar color
11 and serves as the standard of workmanship for the Project

13 Build Mock-up panel for brick panel system in sizes approximately 48 inches (1,219.2mm) long by 48
14 inches (1,219.2mm) high by full wall thickness.

16 Do not start work until Architect/Engineer/Owner has accepted sample panel.

18 Do not destroy or move panel until work is completed and accepted by Architect/Engineer/Owner.

20 **DELIVERY, STORAGE AND HANDLING**

21 Deliver materials in manufacturer's unopened containers, identified with name, brand, type, and grade.

23 Store products in manufacturer's unopened packaging until ready for installation.

25 Store brick panel systems and accessories off the ground, to prevent contamination by mud, dust or other materials
26 likely to cause staining or other defects.

28 Protect materials from contamination, dampness, freezing, or overheating in accordance with manufacturer's
29 instructions.

31 Store different types of materials separately.

33 Mastic and mortar additive are to be stored above 32° Fahrenheit and below 86° Fahrenheit temperatures & no direct
34 sun light.

36 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with
37 requirements of local authorities having jurisdiction.

39 **PROJECT CONDITIONS**

40 Comply with requirements of referenced standards and recommendations of material manufacturers for
41 environmental conditions before, during, and after installation.

43 Protection of Work:

44 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by
45 manufacturer for optimum results. Do not install products under environmental conditions outside
46 manufacturer's absolute limits.

48 Stain Prevention:

49 Prevent adhesive, and mortar from staining the face of masonry.
50 Remove immediately grout or mortar in contact with face of such masonry.

52 To avoid smearing of adhesive on the face of masonry. Allow adhesive on face of installed masonry to
53 set before trying to remove.

55 Protect all sills, ledges and projections from droppings of adhesive or mortar.

56

1 Protect the wall from rain-splashed mud and mortar splatter.
2 Turn scaffold boards closest to the wall on edge when work is not in progress to prevent rain from
3 splashing mortar and dirt onto masonry.
4

5 **Cold Weather Requirements:**

6 Do not use frozen materials or materials mixed or coated with ice or frost.
7

8 Do not build on frozen substrates.
9

10 Remove and replace unit masonry damaged by frost or by freezing conditions.
11

12 Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE
13

14 Comply with adhesive application and temperature requirements as stated in the manufacturer's installation
15 manual.
16

17 **Hot Weather Requirements:**

18
19 Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE
20

21 Protect mortar from uneven and excessive evaporation.
22

23 The face of the installed thin brick may be dampened with water prior mortar installation to reduce the
24 absorption of moisture from the mortar joint and increase bond
25

26 Veneer may be fogged with water to allow the mortar enough time to set. Apply only enough moisture
27 to consistently dampen the wall without allowing water to run down the face.
28

29 Comply with brick panel system manufacturer's application and temperature requirements
30

31 Protect and shade panels from extended exposure direct sun. Excessive head gain can cause adhesive to
32 flow.
33

34
35 **PART 2: PRODUCTS**
36

37 **MANUFACTURERS**

38 **Acceptable Manufacturers:**

39 TABS Wall Systems, LLC located at: • 4515 Airwest Dr SE • Grand Rapids, MI 49512 • 616-554-5400 •
40 Web: www.tabswallsystems.com
41

42 Brick-It, located at: 17 Central Ave. Unit 3, Hauppauge, NY 11788, 631-244-3993, www.brickit.com
43

44 EZ-WALL system manufactured by American Brick Company (AMBRICO) Inc. 12901 Stephens Rd.,
45 Warren, MI 48089, 866-663-6898, www.ambrico.com
46

47 **METAL MASONRY SUPPORT PANELS**

48 Metal Masonry Support Panel intended for the exterior structural mechanical support of thin veneer on concrete/
49 frame construction.

50 Structural grade 33 (.018) steel with G90 galvanized thermal set coating and stucco embossed texture with support
51 & mortar locking ties.
52

53 Flat Panels: 16-square foot (1.44 m²) masonry support panels for flat wall areas 48-inch (1,219.2 mm) x 48-inch
54 (1,219.2 mm) nominal (see below), shall have support spacing as follows (actual dimensions listed):
55

56 2-5/8 inch (66.675 mm) for Modular, standard, Norman, and other 2-1/4" (57.2mm) high units.

1 **CLAY MASONRY UNITS**

2 Provide brick similar in texture, color and physical properties to those available for inspection on the project site

3
4 Thin Brick: ASTM C 1088, Grade Exterior

5
6 Standard Size: 2-1/4 inches (57.2 mm) high, 8 inches (203.2 mm) long

7
8 Special Shapes: Provide shapes indicated and as follows:

9
10 Provide special shapes for applications where flats (stretcher units) cannot accommodate special conditions,
11 including those at corners. Mitered units shall not be used at standard corners.

12
13 Provide special shapes for applications requiring thin brick of size, form, color, and texture on exposed
14 surfaces that cannot be produced by sawing.

15
16 Defective Units: Referenced masonry unit standards may allow a certain percentage of units to contain chips, cracks,
17 or other defects exceeding limits stated in the standard. Do not use units where such defects will be exposed in the
18 completed work.

19
20 **MORTAR FOR THIN BRICK**

21 Mortar shall conform to ASTM C 270 Standard Specification for Mortar for Unit Masonry under the guidelines
22 provided in BIA Technical Notes #8 Series; Type S

23
24 Comply with masonry unit manufacturer's mortar requirements. Mortar shall conform to ASTM C 270 Standard
25 Specification for Mortar for Unit Masonry.

26
27 Cold Weather Additives (including accelerators) shall not be used in thin brick mortar mix.

28
29 **MISCELLANEOUS MATERIALS**

30 Metal Flashing Starter Angle: Minimum Galvanized sheet steel: ASTM A653 0.024 inch (0.61) (26 gauge),
31 minimum ASTM A925 G-90 coating; pre-bent in 8 or 10 ft. (304.8 cm) lengths.

32
33 Weep Holes: Standard weep holes for draining wall panels can be formed by omitting mortar/sealant at intervals of
34 one.

35
36 Adhesive for thin clay brick:

37 High-strength mastics must exceed ASTM D3498 and ASTM C557 TABS adhesive manufacturer's
38 specifications with less than 70 grams of VOC per liter with a shear value between the thin veneer and the
39 panel greater than 100 PSI (10.5 kg/cm²).

40
41 Fasteners: Screw fasteners shall be a minimum #8, minimum 0.138 inch (3.5 mm) shank diameter with a pancake
42 head and corrosion resistance provided by G-90 zinc plating with a minimum protection of 1000 hrs when tested
43 according to ASTM B 117.

44
45 Fasteners to mount the panel shall be suitable for use on masonry installations and approved by the brick
46 panel system manufacturer

47
48 Fasteners into Concrete: Fasteners shall penetrate the substrate a minimum of 1/2" (12.7 mm).

49 Sheathing: Sheathing shall be one of the following as deemed suitable for specific project conditions:

50
51 Exterior grade gypsum sheathing or glass fiber mat-faced sheathing or cement board, not less than 1/2-inch
52 (12.7 mm) in thickness.

53
54 Proprietary Acidic Cleaner: Manufacturer's standard-strength cleaner designed for removing mortar/grout stains,
55 efflorescence, and other new construction stains from new masonry without discoloring or damaging masonry

1 surfaces. Use product expressly approved for intended use by cleaner manufacturer and manufacturer of masonry
2 units being cleaned.

3 **PART 3: EXECUTION**

4 5 6 **EXAMINATION**

7 Do not begin installation until substrates and foundations as well as rough-in and built-in construction have been
8 properly prepared.

9 Substrate shall have no planer irregularities greater than 7 mm in 3.05 m (1/4" in 10')

10
11 Verify substrate including, concrete, masonry or framing as well as sheathings and weather barrier are properly
12 installed

13
14 Verify walls are plumb and corners are braced to specifications

15
16 Substrate must be flat, within 1/8-inch (3.2 mm) within any 4-foot (1.2 m) square area with no planar irregularities
17 greater than 1/4" per 10 linear feet.

18
19 If substrate, foundations or flashings are the responsibility of another installer; notify Architect and also owner,
20 General contractor of unsatisfactory preparation before proceeding.

21 22 **PREPARATION**

23 Clean surfaces thoroughly prior to installation. All surfaces must be free of water, snow & frost, dirt, mud, oil and
24 other foreign materials prior to application.

25
26 Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate
27 under the project conditions.

28
29 Trim or flash in place per manufacturer's details and/or BIA Technical Note 7A on flashing of Brick Walls.

30 31 **INSTALLATION, GENERAL**

32 Install materials in accordance with manufacturer's instructions.

33
34 Select and arrange exposed masonry units to produce a uniform blend of color and texture. Mix units from several
35 pallets or cubes as they are placed.

36
37 Comply with tolerances in TMS 602/ACI 530.1/ASCE 6.

38
39 Install embedded flashing and weep holes in brick panel assemblies at the base of the wall, above openings, above
40 horizontal movement joints, and other obstructions to the downward flow of water in wall, and where indicated.

41
42 Before covering with wall panel or mortar, seal penetrations in flashing with adhesive, sealant, or flashing tape as
43 recommended by flashing tape manufacturer.

44
45 Carry flashing vertically as detailed, but not less than 3 inches (76 mm) above horizontal plane.

46
47 Lap flashing a minimum of 3 inches (76 mm).

48
49 Seal all flashing laps with approved wall systems tapes.

50
51 Extend head and sill flashings not less than 6 inches (150 mm) beyond edges of openings; seal with flashing tape.

52
53 Project starter angle from face of wall with a minimum 5/8-inch (6 mm) to form a drip.

54
55 Install weep holes every 24" in head joints at all flashings. Keep vents and weep holes free of mortar.
56

1 **METAL PANEL SYSTEM**

2 Install in accordance with manufacturer's written instructions as applicable to each type of substrate required.
3 Trim, starter angle and flashing shall be installed prior to panel installation.

4
5 Walls shall be constructed of structurally sound masonry, wood, or steel studs, with an approved building sheathing

6
7 Panels shall be clean, free of dirt, oil or any other foreign contaminant.

8
9 Lay out panels in advance for accurate spacing of tabs to allow installation of full height masonry units at top and
10 bottom of walls, openings, etc. when possible. Note: Panel sizes will vary depending on spacing.

11
12 Attach panels flat to the substrate in true and level rows with support ties aligned and level to each other at flat
13 sections as well as corners.

14
15 Stagger metal panel joints over sheathing joints. This requires cutting 1/2 panels when starting at outside or inside
16 corners. When using pre bent corner panels, stagger joints of flat panels after corner panel installation for control
17 joint placement.

18
19 Do not allow panels to bridge movement joints in substrate.

20
21 Install full-size uncut panels when possible. When cutting is required to provide staggered panel joints or to fit
22 specific application, cut panels to provide clean, unbent edges.

23
24 Install panels to ensure a 1/16" – 1/8" gap between the sides of the panels and butt panels vertically, always leaving
25 a gap at movement joints locations equal to the thickness of the joint.

26
27 Stop panel 1/4" to 3/8" from inside corners, openings and other materials to allow for movement.

28
29 Fastener Installation: Mechanically attach metal panels with a minimum of 1.5 fasteners per square foot (16 sf = 24
30 fasteners) increasing spacing along the top and bottom of the wall and around openings.

31
32 Horizontal fastener spacing shall not exceed 24 inches; vertical fastener spacing shall not exceed 16 inches.

33
34 Provide additional anchors around the perimeter of walls as well as openings (406 mm) in either dimension,
35 as well as building corners not utilizing corner panels as follows:

36
37 Install fasteners a minimum of 3 per square foot (900 cm2).

38 At the top and bottom of the walls, fasteners shall be spaced a maximum of 16 inches (305 mm)
39 horizontally and within the height of a single row or course of masonry.

40
41 At vertical wall ends of wall and openings, fasteners shall be spaced a maximum of 8 inches
42 vertically within 4 inches of the end of the panel.

43
44 **THIN VENEERS**

45 Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for
46 accurate location of openings, movement joints, returns, and offsets.

47 Avoid using less-than-half-size units, particularly at corners and jambs.

48
49 Ensure unfinished or cut faces are not exposed to view upon completion.

50
51 Select and arrange units for exposed unit masonry to produce a uniform blend of color and texture.

52
53 Lay masonry in a standard running bond pattern

54
55 Back face of thin brick must be dry and clean; free of dirt, oil or any other foreign contaminant.

56

1 Leave a uniform 3/8 - 1/2-inch (9.5 - 12.7 mm) gap at openings to allow for movement joint installation.
2 Adhere individual units to panel using adhesive placed on the back of the units in two 1/2 - 3/4-inch dabs or vertical
3 strips 3/8-inch wide. For corner brick apply one dab on head and one dab at each end of the long leg.

4
5 Do not apply adhesive in a manner that would create horizontal strips of adhesive that may prevent
6 moisture from draining down the wall.

7
8 Do not use excessive adhesive as this will cause thin brick to tilt away from wall prior to adhesive set.

9
10 Thin veneers shall be applied within 10 minutes after adhesive has been applied and before film begins to form on
11 the adhesive. Silicone needs to set until film has been formed a minimum of 5 minutes.

12
13 Space thin brick to ensure that the head joints do not exceed 5/8-inch (16 mm) or fall below 1/4-inch (6.4 mm).

14
15 When adjustment is necessary to be made after adhesive begins to harden, remove hardened adhesive and replace
16 with fresh adhesive.

17
18 Keep areas intended to receive sealant clean of thin brick, adhesive and other materials during construction.

19
20 Do not allow masonry units to bridge movement joints in substrate.

21 22 **MORTAR INSTALLATION AND JOINTING**

23 After adhesive has set a minimum of 12 hours, completely fill head and bed joints between adhered veneers intended
24 to receive mortar.

25
26 Keep weep holes free of mortar every 24 inches immediately above starter angles and flashings.

27
28 Tool exposed joints when thumbprint hard to a concave appearance

29 30 **CLEANING**

31 In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove adhesive as well as mortar
32 and smears before tooling joints.

33
34 Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:

35
36 Cut out all defective mortar joints and holes in exposed masonry and provide new mortar.

37
38 Clean preselected sample wall area with specified cleaning solution as per manufacturer's
39 recommendations. Do not proceed with cleaning until approved by Architect.

40
41 Clean thin brick in accordance with manufacturer's written instructions.

42
43 Protect adjacent stone and non-masonry surfaces from contact with cleaner.

44
45 All cleaning practices and product used shall be in accordance with cleaning products manufacturer's
46 written for further instructions.

47
48
49 **END OF SECTION**
50 **04 21 13.13**

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05 01 70.61
DECORATIVE METAL CLEANING AND REPAIR

PART 1 - GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment and supervision necessary to provide for the cleaning and repair of copper and bronze existing elements and such features as required in these specifications and on the drawings. Included are the following topics:

PART 1 – GENERAL

- Scope
- Related Documents
- Summary
- Submittals
- Quality Assurance
- Delivery, Storage and Handling

PART 2 – MATERIALS

- Metal Materials
- Preparatory Cleaning Materials
- Fasteners
- Miscellaneous Materials
- Metal Fabrication
- Finishes, General

PART 3 - EXECUTION

- Protection
- Decorative Metal Cleaning, General
- Decorative Metal Repair, General
- Decorative Metal Refinishing, General
- Preparatory Cleaning
- Decorative Metal Repair Schedule

RELATED DOCUMENTS

Applicable provisions of Division 1 shall govern this Section.

SUMMARY

Section includes decorative metal cleaning, repair and refinishing as follows:

Removing the existing bronze double doors and frame for shop cleaning, repair, replacement and refinishing of components; reinstallation of bronze double doors and frame.

Removing the existing copper exterior wall grilles for shop cleaning, repair and replacement of copper mesh; reinstallation of grilles.

SUBMITTALS

Product Data: For each type of product

Shop Drawings:

Include elevations of the double doors and frame showing locations and extent of repair and replacement work, with enlarged details of replacement parts indicating materials, profiles, methods of attachment, accessory items, and finishes.

Include field-verified dimensions and the following:

Identification of each new metal item and component and its location on the doors and/or frame in annotated elevations.

Provisions and locations of expansion joints, weep holes and sealant joints

1 Samples for Verification:

2 Each type of new material to be used for replacing existing or missing decorative bronze in required finishes

3
4 Copper mesh material, minimum 12-inch square

5
6 Accessories: Each type of anchor, accessory, and miscellaneous support in required finishes.

7
8 Qualification Data: For decorative metal repair specialist.

9
10 **QUALITY ASSURANCE**

11 Decorative Metal Cleaning and Repair Specialist Qualifications: Cleaning specialist shall be experienced in using
12 mechanical and chemical methods on the types of metal surfaces indicated. Experience installing and finishing new
13 decorative metalwork is insufficient experience for repairing decorative metal.

14
15 Mockups: Prepare mockups of decorative metal cleaning and repair processes on existing surfaces to demonstrate
16 aesthetic effects and to set quality standards for materials and execution and for fabrication and installation. Prepare
17 mockups so they are inconspicuous.

18
19 Cleaning and Repair of Decorative Metal: One decorative grille; one joint repair and one hole repair in bronze
20 door (architect will come to shop for review of work if shop is located within 50 miles of Madison, WI)

21
22 Approval of mockups does not constitute approval of deviations from the Contract Documents contained in
23 mockups unless Architect specifically approves such deviations in writing.

24
25 Subject to compliance with requirements, approved mockups may become part of the completed Work if undis-
26 turbed at time of Substantial Completion.

27
28 **DELIVERY, STORAGE, AND HANDLING**

29 Pack, deliver, and store decorative metal items in suitable packs, heavy-duty cartons, or wooden crates; surround
30 with sufficient packing material to ensure that products are not deformed, cracked, or otherwise damaged.

31
32 Store decorative metal inside a well-ventilated area, away from uncured concrete and masonry and protected from
33 weather, moisture, soiling, abrasion, extreme temperatures, and humidity.

34
35 Protect strippable protective covering on decorative metal from exposure to sunlight and high humidity, except to
36 the extent necessary for the period of decorative metal installation.

37
38 **PART 2 - PRODUCTS**

39
40 **METAL MATERIALS**

41 General: Provide decorative metal materials made of the alloys, forms, and types that match existing metals and
42 have the ability to receive finishes matching existing finishes unless otherwise indicated. Exposed-to-view surfaces
43 exhibiting imperfections inconsistent with existing materials are unacceptable.

44
45 Copper Alloys, Bronze: Copper alloy designated below for each form required:

46
47 Plate, Sheet, Strip, and Bars: ASTM B 36/B 36M, Alloy UNS No. C28000 (muntz metal, 60 percent copper and
48 40 percent zinc).

49
50 Copper: Copper designated below for each form required: 14 gauge

51
52 Extruded Shapes: ASTM B 249/B 249M, Alloy UNS No. C11000/C12500 (99.9% copper).

53
54 Filler Metals: Alloy UNS No. C18900 (99.9% copper).

55
56 Copper Mesh: 100% pure copper; wire diameter: 0.032 inches; width opening: 0.031; open area: not more than 24%

1 **PREPARATORY CLEANING MATERIALS**

2 Water: Distilled

3
4 Hot Water: Water heated to a temperature of 140 to 160 deg F (60 to 71 deg C).

5
6 Detergent Solution, Job Mixed: Solution prepared by mixing 2 cups (0.5 L) of tetrasodium pyrophosphate (TSPP),
7 1/2 cup (125 mL) of laundry detergent, and 20 quarts (20 L) of hot water for every 5 gal. (20 L) of solution required.

8
9 Nonacidic Liquid Chemical Cleaner: Manufacturer's standard mildly alkaline liquid cleaner, formulated for remov-
10 ing organic soiling from ordinary building materials, including polished stone, brick, copper, brass, bronze, alumi-
11 num, stainless steel, plastics, wood, and glass.

12
13 Abrasive Materials:

14
15 Abrasive Pads for Copper-Alloy Cleaning: Extra-fine bronze wool or plastic abrasive pads.

16
17 Blasting Abrasive: Not allowed

18
19 **FASTENERS**

20 Fasteners: Fasteners of the same basic metal as fastened metal unless otherwise indicated. Use metals that are non-
21 corrosive and compatible with each metal joined.

22
23 Match existing fasteners in material and in type of fastener unless otherwise indicated.

24
25 Use concealed fasteners for interconnecting decorative metal components and for attaching them to other work un-
26 less exposed fasteners are the existing fastening method.

27
28 Finish heads of exposed fasteners to match finish of metal fastened unless otherwise indicated.

29
30 Anchors, General: Use bolt heads of same basic metal as fastened metal unless otherwise indicated. Use metals that
31 are noncorrosive and compatible with each metal anchored.

32
33 Post-Installed Structural Anchors: Fastener systems; with working capacity greater than or equal to the design load,
34 according to an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 and AC193
35 as appropriate for the substrate.

36
37 **MISCELLANEOUS MATERIALS**

38 Brazing Rods for Copper-Alloy Components: Type and alloy as recommended in writing by producer of metal to be
39 brazed and as required for color match, strength, and compatibility in fabricated items.

40
41 Liquid Strippable Masking Agent: Manufacturer's standard liquid, film-forming, strippable masking material for
42 protecting glass, metal, glazed masonry, and polished stone surfaces from damaging effects of acidic and alkaline
43 cleaners.

44
45 Masking Tape: Non-staining, nonabsorbent material; compatible with chemical solutions being used and substrate
46 surfaces, and that will easily come off entirely, including adhesive.

47
48 **METAL FABRICATION**

49 Fabricate repairs of decorative metal items and components in sizes and profiles to match existing decorative metal,
50 with accurate curves, lines, and angles. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to
51 weather to resist water penetration and retention.

52
53 Provide uniform, neat seams with minimum exposure of welds, brazing, solder, and sealant.

54
55 Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap
56 for fasteners. Use concealed fasteners where possible; use exposed fasteners to match existing work.

1 Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished
2 surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed joints of flux, and dress
3 exposed and contact surfaces.
4
5 Use materials and methods that match color of base metal, minimize distortion, and develop maximum strength and
6 corrosion resistance.
7
8 Remove flux immediately.
9
10 At exposed connections, match contours of adjoining surfaces, and finish exposed surfaces smooth and blended so
11 no roughness shows after finishing.
12

13 **FINISHES, GENERAL**

14 Bronze Double Doors: Protect existing finishes on exposed surfaces from damage by applying a strippable, tempo-
15 rary protective covering before removal from building and during all shipping.
16

17 Satin Hand-Rubbed Finish: M32-M34 Mechanical Finish: directionally textured, medium satin and hand rubbed
18
19

20 **PART 3 - EXECUTION**

21 **PROTECTION**

22
23 Comply with each manufacturer's written instructions for protecting building and other surfaces against damage
24 from exposure to its products. Prevent chemical solutions from coming into contact with people, motor vehicles,
25 landscaping, buildings, and other surfaces that could be harmed by such contact.
26
27

28 Cover adjacent surfaces with materials that are proved to resist chemical solutions being used unless products
29 being used will not damage adjacent surfaces. Use protective materials that are waterproof and UV resistant.
30 Apply masking agents to comply with manufacturer's written instructions. Do not apply liquid masking agent to
31 painted or porous surfaces. When no longer needed, promptly remove masking to prevent adhesive staining.
32

33 Do not apply chemical solutions during winds of enough force to spread them to unprotected surfaces.
34

35 Neutralize alkaline and acid wastes before disposal.
36

37 Dispose of runoff from operations by legal means and in a manner that prevents soil erosion, undermining of
38 paving and foundations, damage to landscaping, and water penetration into building interiors.
39

40 **DECORATIVE METAL CLEANING, GENERAL**

41 Execution of the Work: In cleaning items, disturb them as minimally as possible and as follows:
42

43 Remove deteriorated coatings and corrosion.
44

45 Mechanical Coating Removal: Use gentle methods, such as scraping and wire brushing, that will not abrade metal
46 substrate.
47

48 **DECORATIVE METAL REPAIR, GENERAL**

49 Repair Appearance Standard: Repaired surfaces are to have a uniform appearance as viewed from 10 feet (3 m)
50 away by Architect.
51

52 Execution of the Work: In repairing items, disturb remaining existing work as minimally as possible and as follows:
53

54 Stabilize decorative metal to reestablish structural integrity and weather resistance while maintaining the exist-
55 ing form of each item.
56

- 1 Remove deteriorated coatings and corrosion.
2
3 Repair items where stabilization is insufficient to stop progress of deterioration.
4
5 Mechanical Coating Removal: Use gentle methods, such as scraping and wire brushing, that will not abrade metal
6 substrate.
7
8 Repair Decorative Metal Item: Match existing materials and features.
9
10 Repair decorative metals by patching, piecing-in, splicing, or otherwise reinforcing metals with new metal matching
11 existing metal.
12
13 Replace Decorative Metal Component: Where indicated, duplicate and replace items with new metal matching exist-
14 ing metal.
15

16 **DECORATIVE METAL REFINISHING, GENERAL**

17 Refinishing Appearance Standard: Refinished surfaces are to have a uniform appearance as viewed from 10 feet
18 (3 m) away by Architect.
19

20 Execution of the Work: In refinishing items, disturb remaining existing work as minimally as to remove dirt and
21 corrosion.
22

23 Repair Finish of Decorative Metal Item: Restore areas of deteriorated or missing finish on item and blend restored
24 finish with existing, adjacent finish, including integral polished and patinated finishes.
25

26 **PREPARATORY CLEANING**

27 General: Use those methods indicated for each type of decorative metal and its location.
28
29

30 Brushes: If using wire brushes, use brushes of same base metal composition as metal being cleaned. Use brushes
31 that are resistant to chemicals being used.
32

33 Uniformity: Perform each cleaning method in a manner that results in uniform coverage of all surfaces, including
34 corners, contours, and interstices, and that produces an even effect without streaks or damaging surfaces.
35

36 Protection: After cleaning is complete, remove protection no longer required. Remove tape and adhesive marks.
37

38 Water Cleaning: Clean with hot water applied by medium- pressure spray. Supplement with natural-fiber or plastic-
39 bristle brush. Use small brushes to remove soil from joints and crevices.
40

41 Detergent Cleaning:

42 Wet surface with hot water applied by low-pressure spray.

43 Scrub surface with detergent solution and natural-fiber or plastic-bristle brush until soil is thoroughly dislodged
44 and can be removed by rinsing. Use small brushes to remove soil from joints and crevices. Dip brush in solution
45 often to ensure that adequate fresh detergent is used and that surface remains wet.
46

47 Rinse with hot water applied by low-pressure spray to remove detergent solution and soil.
48

49 Repeat cleaning procedure where needed to produce cleaning effect established by mockup.
50

51 Cleaning with Abrasive Pads: Clean surfaces to remove dirt leaving existing uniform patina intact, by light rubbing
52 with abrasive pads and water. Rinse with cold water to remove residue. Apply rinse by low-pressure spray.
53

54 **DECORATIVE METAL REPAIR SCHEDULE**

55 Treatment for Bronze Double Doors and Frame:
56

1 General: Perform work in the shop.
2
3 Rust Removal: Mechanical.
4
5 Repair: Patch with new material by filling, welding or brazing. Apply repair primer immediately after repair.
6
7 Bronze Finish: satin hand-rubbed finish
8
9 Reinstall frame with perfectly aligned mitered corners

10
11 Treatment for Copper Grilles and Mesh Screening:
12

13 General: Perform work in the shop.
14

15 Repair: Patch with new material by filling, welding or brazing. Apply repair primer immediately after repair.
16

17 Copper Mesh: Remove existing copper mesh and soldering points. Attached new copper mesh to backside of
18 grille with continuous solder joint
19

20 Finish: Allow natural patina to develop
21

22 **END OF SECTION**
23 **05 01 70.61**

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SECTION 07 14 16
COLD FLUID APPLIED WATERPROOFING

PART 1: GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the fabrication and installation of a full reinforced cold fluid-applied advanced polyurethane waterproofing membrane system and such features as required in these specifications and on the drawings. Included are the following topics:

PART 1 - GENERAL

- Scope
- Related Work
- Submittals
- Quality Assurance
- Pre-Installation Conference
- Delivery, Storage and Handling
- Sequencing
- Project Conditions
- Warranty

PART 2 – PRODUCTS

- Manufacturers
- Products, General
- Cold Fluid Applied Waterproofing System Components
- Accessories

PART 3 - EXECUTION

- Examination
- Preparation
- Cap Sheet Temporary Waterproofing/Vapor Retarder Installation
- Primer Application
- Flashing Application
- Membrane Preparation for Surfacing and Coatings
- Temporary Closures and Waterstops
- Protection
- Filed Quality Control
- Cleaning
- Closeout

RELATED WORK

Applicable provisions of Division 1 shall govern this Section.

SUBMITTALS

Product Data:

Provide cold fluid applied flashing manufacturer's printed data sufficient to show that all components of the items comply with the specified requirements and with the cold fluid applied flashing manufacturer's requirements and recommendations for the types specified; include data for each product used in conjunction with roofing system. Include Material Safety Data Sheets (MSDS) for all components.

Shop Drawings:

Provide plan and detail drawings of cold fluid-applied two-component urethane waterproofing membrane system including membrane, penetration flashings, base flashings, and expansion joints size, flashing details, and attachment.

1 Samples for Verification: For each product specified in minimum size of 6 inches (150 mm) square, representing
2 actual product, thickness, color, texture and surfacing

3
4 Manufacturer's Certificates: Certify products meet or exceed specified requirements.

5
6 On Site Testing: Submit on site test reports of Substrate Moisture Content and Bond Strength test results as
7 specified.

8
9 Closeout Submittals:

10 Maintenance Data for sheet metal flashing, trim and accessories

11
12 Warranty: Fully executed warranty with all applicable signatures

13
14 **QUALITY ASSURANCE**

15 Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting on site to discuss the
16 proper installation of materials and requirements to achieve the warranty.

17
18 Required Attendance: All parties directly influencing the quality of roofing work or affected by the
19 performance of roofing work; including but not limited to Owner, architect, testing and inspecting agency,
20 Cold fluid applied flashing installer and representative, Section 07 62 00 Sheet Metal Flashing and Trim
21 installer and representative and Section 07 53 23 EPDM installer and representative.

22
23 Review construction schedule and sequencing. Verify availability of materials, Installer's personnel,
24 equipment, and facilities needed to make progress and avoid delays.

25
26 Review special roof details, roof drainage, roof-penetration flashing and condition of other construction
27 that affect cold fluid applied flashing.

28
29 Review requirements for warranty, insurance and certificates if applicable.

30
31 Review cold fluid applied flashing observation and repair procedures after installation.

32
33 Review foreseeable methods and procedures related to waterproofing work, including set up and
34 mobilization areas for stored material and work area.

35
36 Tour representative areas of waterproofing substrates, inspect and discuss condition of substrate,
37 penetrations and other preparatory work.

38
39 Review structural loading limitations of deck and inspect deck for loss of flatness and for required
40 attachment.

41
42 Review required inspection, testing, certifying procedures.

43
44 Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions,
45 including possibility of temporary roofing.

46
47 Comply with all applicable codes, regulations, and standards. Where provision of applicable codes, regulations, and
48 standards conflict with requirements of this section the more demanding shall govern.

49
50 Manufacturer Qualifications: Company specializing in manufacturing the products system specified with a
51 minimum of 20 years of documented experience with applications in the United States.

52
53 Installer Qualifications: Company specializing in performing the work of this section with a minimum of 3 years
54 documented experience and approved by system manufacturer for warranted membrane installation.

55

1 Installer's Field Supervision: Maintain a full-time Supervisor/Foreman on job site during all phases of roofing work
2 while roofing work is in progress
3

4 Manufacturer's Field Service: Membrane manufacturer shall provide the services of a competent field representative
5 on-site to provide the following inspections:
6

7 Job start inspection at the beginning of each phase of the project, to review special detailing conditions and
8 substrate preparation.
9

10 Periodic in-progress inspections throughout duration of the project to evaluate membrane and flashing
11 application.
12

13 Final punch-list inspection at the completion of each phase of the project prior to installation of any
14 surfacing or overburden materials.
15

16 Warranty inspection to confirm completion of all punch list items, surfacing, and overburden application.
17

18 Source Limitations: Obtain all principal components of waterproofing system from a single manufacturer.
19 Secondary products that are required shall be as recommended and approved in writing by the waterproofing system
20 manufacturer. Upon request of the Architect or Owner, submit Manufacturer's written approval of secondary
21 components in list form, signed by an authorized agent of the manufacturer.
22

23 **DELIVERY, STORAGE AND HANDLING**

24 Store products in manufacturer's unopened packaging with labels intact until ready for installation.
25

26 Store materials off the ground or on pallets, under cover and in a cool, dry location, out of direct sunlight, in
27 accordance with manufacturer's recommendations. Store roll goods horizontally on platforms sufficiently elevated
28 to prevent contact with water and other contaminants. Do not use rolls that are wet, dirty or have damaged ends.
29 Materials must be kept dry at all times.
30

31 Do not store materials in quantities that exceed design loads, damage substrate materials, hinder installation or
32 drainage.
33

34 Follow manufacturer's directions for protection of materials prior to and during installation. Do not use materials
35 that have been damaged to the point that they will not perform as specified. Fleece reinforcing materials must be
36 clean, dry and free of all contaminants.
37

38 Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with
39 requirements of local authorities having jurisdiction.
40

41 **PROJECT CONDITIONS**

42 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by
43 manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's
44 absolute limits.
45

46 Do not apply roofing/waterproofing membrane during or with the threat of inclement weather.
47

48 Application of waterproofing membrane may proceed while air temperature is between 40 degreesF (5 degreesC)
49 and 85 degreesF (30 degreesC) providing the substrate is a minimum of 5 degreesF above the dew point.
50

51 When ambient temperatures are at or expected to fall below 50 degrees F (10 degrees C), or reach 85 degrees F (30
52 degrees C) or higher, follow Membrane System Manufacturer's recommendations for weather related additives and
53 application procedures.
54

1 Ensure that substrate materials are dry and free of contaminants. Do not commence with the application unless
2 substrate conditions are suitable. Contractor shall demonstrate that substrate conditions are suitable for the
3 application of the materials.
4

5 Where required by the Architect, implement odor control and elimination measures prior to and during the
6 application of the roofing/waterproofing materials. Control/elimination measures shall be field tested at off-hours
7 and typically consists of 1 or a multiple of the following measures:
8

9 Erection and use of moveable enclosure(s) sized to accommodate work area(s) and stationary enclosure for
10 resin mixing station. Enclosure shall be field constructed or pre-manufactured of fire retardant materials in
11 compliance with local requirements in accordance with requirements of the Owner or his designated
12 Representative. Provide enclosure(s) with mechanical air intake/ exhaust openings and Odor Control Air
13 Cleaners, as required to clean enclosed air volume and to prevent odor migration outside the enclosure.
14 Exhaust opening shall be sealed with activated carbon filter
15

16 Protection of Contractor personnel and occupants of the structure and surrounding buildings as necessary to
17 comply with requirements of OSHA, NIOSH and/or governing local authority.
18

19 **WARRANTY**

20 Manufacturer's Premier Warranty: Provide 30-year manufacturer's premier warranty that provides for cost of labor
21 and materials for loss of water-tightness, limited to amounts necessary to effect repairs necessitated by either
22 defective material or defects in related installation workmanship, with no dollar limitation ("NDL").
23
24
25

26 **PART 2: PRODUCTS**

27 **MANUFACTURERS**

28 Basis-of-Design Product: The design for cold fluid applied product is based on a product by Kemper Systems.
29 Subject to compliance with requirements, provide either the named product or submit for approval, a comparable
30 product.
31

32 Acceptable Manufacturer: Kemper System America, Inc.; 1200 North America Drive, West Seneca, NY 14224.
33 ASD. Toll Free Tel: 800-541-5455; Fax: 716-558-2967; Email:inquiry@kempersystem.net;
34 Web:www.kempersystem.net.
35
36

37 **PRODUCTS, GENERAL**

38 Materials shall be products of a single manufacturer or items specified that are standard with manufacturer of cold
39 fluid-applied polyurethane liquid resin roofing and waterproofing membrane and flashing system. Provide primers
40 and other secondary materials that are produced or are specifically recommended by manufacturer of membrane
41 waterproofing system to ensure compatibility.
42

43 **COLD FLUID APPLIED WATERPROOFING SYSTEM COMPONENTS**

44 Membrane: Kemper System's two-component, cold fluid-applied reinforced polyurethane waterproofing membrane
45 with a 360-degree needle punched non-woven 165 g/m2 polyester reinforcing fleece, for a finished dry film
46 membrane thickness of .080 inch nominal per ply. Provide products manufactured and supplied by the following (or
47 approved equal):
48

49 Resin: Kemper System's Kemperol 2K-PUR resin for use in an adhered waterproofing system.
50

51 Properties:

52 Color: Gray-Green

53 Physical state: Cures to solid

54 Thickness: (165 fleece) 80 mils

55 Tensile strength @ break: 70 lbf CMD. 100 lbf MD, ASTM D 4073

56 Elongation: 30 percent, ASTM D 5147

1 Tearing strength: 60.0 lbs/in., ASTM D 4073
2 Puncture resistance: 140 lbf, FTMS 101-2031
3 Dimensional stability: 0.15 percent, ASTM D 1204
4 Water absorption: Less the 3 percent, ASTM D 471
5 Surface hardness: Shore A 75 plus or minus 15, ASTM D 2240
6 Water vapor transmission: 0.08 perms, ASTM E 96
7 Rapidly Renewable Resources: 80 percent
8 VOC in grams/liter: 6.0 g/l
9 Usage time: After 30 minutes at 73 degrees F, 50 percent relative humidity.
10 Rain Proof After: 2 hours at 73 degrees F, 50 percent relative humidity.
11 Solid to walk on: After 24 hours at 73 degrees F, 50 percent relative humidity.
12 Surfacing: To be applied between 16-48 hours after application at 73 degrees F, 50 percent relative
13 humidity.
14 Apply overburden: After 2 days
15 Completely hardened: After 3 days
16 Crack spanning: 2 mm/0.08 inch
17 Short-term temperature resistance: 250 degrees C/482 degrees F.

18
19 Membrane Flashings: Composite of the same resin material as field membrane with 165 g/m2 fleece reinforcement.
20

21 Substrate Primer and Resin Additives:

22 Epoxy Primer: Kempertec EP/EP5 primer. Two-component, solvent-free epoxy resin for use in improving
23 adhesion of membrane to cementitious/masonry substrate surfaces.

24
25 Cold Weather Additive: Additive specifically designed to accelerate the resin reaction time at ambient
26 temperatures below 50 degrees F (10 degrees C). Accelerator to be used with cream resin Component A
27 prior to mixing of multi-component resin.
28

29 Cap Sheet:

30 SBS Cap Sheet: Mineral-surfaced fiberglass or polyester-reinforced SBS-modified bitumen cap sheet
31 conforming to ASTM D 6163 (fiberglass) or ASTM D 6164 (polyester), suitable for torch, hot asphalt, or
32 self- adhered application.
33

34 ACCESSORIES

35 Solvent-Based Cleaner for Tools and Membrane Tie-Ins: Methyl Ethyl Ketone (MEK) or acetone.

36
37 Water-Based Cleaner for Membrane: Simple Green HD.

38
39 Leveling and Patching Aggregate: Silica sand shall be washed, kiln-dried, and dust-free, suitable for troweling or
40 pourable self-leveling, round grain or angular with the following size specification:

41 For voids less than 1 inch in depth: #00 (0.3 - 0.6 mm)

42
43 For voids 1 to 2 inches in depth: #0 (0.5 - 1.2 mm)

44
45 Mixing Proportions shall be a ratio of resin to sand at 1:2 by volume for leveling, 1:4 by volume for
46 patching, or as approved by membrane manufacturer.
47

48
49 Backer Rod: Expanded, closed-cell polyethylene foam designed for use with cold-applied joint sealant.
50

51 Caulking: Single component, non-sag elastomeric polyurethane sealant meeting ASTM C 920, Type S, Grade NS,
52 Class 35 for use in sealing cracks and joints, and making watertight seals where required.
53

54
55
56

1
2
3 **PART 3: EXECUTION**

4 **EXAMINATION**

5 Do not begin installation until substrates have been properly prepared.

6 Substrates shall be inspected and repaired as needed to provide a proper surface to receive waterproofing
7 system.

8
9 Verify substrate surface slopes to drain for horizontal waterproofing applications.

10 Identify incompatible substrates, if any.

11
12 Verify substrate openings, curbs, and protrusions through deck/substrate, wood cant strips and reglets are in place
13 and solidly set.

14
15 If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before
16 proceeding.

17
18 **PREPARATION**

19 Protect building components with tarps or other suitable materials, from soil, stains, or spills at all hoisting points
20 and areas of application.

21
22 Any such damage shall be repaired at Contractor's expense to Owner's satisfaction or be restored to original
23 condition.

24 Provide barricades, retaining ropes, safety elements and any appropriate signage required.

25
26 Surfaces to be prepared as a substrate for the new waterproofing system as follows:

27
28 Determine the condition of the existing structural deck/substrate. All defects in the deck or substrate shall
29 be corrected before new waterproofing work commences. Areas of deteriorated deck/substrate, porous or
30 other affected materials must be removed and replaced with new to match existing.

31 Prepare flashing substrates as required for application of new waterproofing membrane flashings.

32 Inspect substrates, and correct defects before application of new waterproofing. Fill all surface voids
33 greater than 1/8-inch-wide with an acceptable fill material.

34 Remove all ponded water, snow, frost and/or ice from the work substrate prior to installing new
35 waterproofing materials.

36 Final substrate for waterproofing shall be clean, dry, free of loose, spalled or weak material including
37 coatings, mineral aggregate, and flood coat/gravel surfacing, oil, grease, contaminants, abrupt changes in
38 level, waterproofing agents, curing compounds, and free of projections which could damage membrane
39 materials.

40
41 On Site Testing: Perform on site testing of cementitious substrate. Determine substrate moisture content throughout
42 the work and record with Daily Inspection Reports or other form of reporting acceptable to the Architect, and
43 Membrane Manufacturer. Do not begin application of waterproofing until acceptable conditions are achieved.

44 Evaluate surface moisture content by means of an Tramex Concrete Moisture Encounter Meter. A surface
45 moisture content of under 5 percent is required to allow for proper primer penetration into the substrate.

46 Frothing, bubbling, or pinholes within the primer indicates excessive moisture content within the substrate.
47 Blistering of membrane may result from excessive substrate moisture. Primer application during late
48 afternoon/early evening will reduce vapor pressure within the substrate and may alleviate these conditions.
49
50
51
52
53
54
55
56

1 Continued frothing, bubbling, or pinholes indicates excessive moisture content that requires more
2 substantial measures. Evaluate substrate moisture content by means of relative humidity (RH) probes in
3 accordance with ASTM F 2170. Relative moisture content of 75 percent or greater indicates the need for
4 more extensive substrate priming and sealing. Contact Membrane Manufacturer for recommendations.
5

6 **Bond Strength to Substrate:** Conduct random tests to determine tensile bond strength of membrane to substrate at the
7 job site using an Elcometer Adhesion Tester Model 106 or similar device, or by the performance of a manual pull
8 test. Perform tests at the beginning of the Work, and at intervals as required to assure specified adhesion with a
9 minimum of 3 tests per 5000 SF area to be waterproofed. Smaller areas shall receive a minimum of 3 tests. Submit
10 test results to the Architect promptly as they are completed. Notify the Architect immediately in the event the test
11 results are below specified values.
12

13 Tensile bond strength of membrane to substrate must be greater than or equal to 150 psi (1.0 N/mm²), as
14 determined by use of an adhesion tester.
15

16 Adequate surface preparation will be indicated by 135 degree peel bond strength of membrane to substrate
17 such that cohesive failure of substrate or membrane occurs before adhesive failure of membrane/ substrate
18 interface.
19

20 In the event the bond strengths are less than the minimum specified, additional substrate preparation and
21 testing is required. Repeat testing to verify suitability of substrate preparation.
22

23 **Structural Concrete:**

24 Concrete shall be free of oil, grease, curing compounds, loose particles, moss, algae growth, laitance, friable matter,
25 dirt, bituminous products and previous waterproofing materials.
26

27 Concrete shall be dry with a maximum moisture content of 5 percent. Installer shall perform periodic evaluations of
28 moisture content during the work. Moisture evaluation results shall be submitted in writing to the Architect and
29 Waterproofing manufacturer on-site representative for acceptance.
30

31 Where required, concrete shall be abrasively cleaned in accordance with ASTM D 4259 to provide a sound substrate
32 free from laitance. Achieve an open concrete surface in accordance with ICRI surface profiles CSP 3-5. When using
33 mechanical methods to remove existing waterproofing products or surface deterioration, the surface profile is not to
34 exceed 1/4 inch (peak to valley).
35

36 Substrate shall be sound and all spalls, voids and blow holes on vertical or horizontal surfaces must be repaired prior
37 to placement of the primer coat. Spalls and other deterioration shall be repaired in accordance with the requirements
38 of the Architect and Membrane manufacturer.
39

40 Areas of minor surface deterioration of 0.25 inch (6 mm) or greater in depth shall be repaired to prevent possible
41 pooling of the liquid applied materials, leading to excessive usage of primer and resin.
42

43 **Finish Leveling, Patching and Crack Preparation:**

44 General: epoxy primer/sand mix is the preferred material for all concrete and masonry substrate finish
45 leveling, crack and wall/deck preparation and patching. Epoxy primer/sand patching mix provides a set
46 time of approximately twelve hours and does not require surface grinding. Kemperol primer/sand mix is
47 typically applied in conjunction with general surface priming.
48

49 **Concrete and Masonry Substrate Leveling and Patching:** Substrate conditions are to be evaluated by the
50 installer, the Architect, and Membrane manufacturer. Perform leveling and patching operations as follows:
51

52 Level uneven surfaces with a leveling mixture of primer and approved kiln-dried silica sand in a 1:2
53 primer to sand ratio by volume. Spread and plane this compound with a squeegee and trowel to achieve
54 a flat surface.
55

1 Fill cavities with a patching mixture of primer and approved kiln-dried sand in a 1:4 primer to sand ratio
2 by volume.

3
4 Silica sand must be kept absolutely dry during storage and handling.

5
6 Any surface to be leveled or filled must first be primed with a with an appropriate primer.

7
8 **Joint and Crack Preparation:** Joints, cracks and fractures in the structural deck/substrate shall be prepared as prior to
9 installation of the waterproofing membrane to prevent telegraphing through the waterproofing membrane.

10
11 **Non-Moving Cracks, Joints, and Voids:** Clean out crack/ joint by brushing and oil-free compressed air. Fill
12 crack/joint with polyurethane sealant. Voids require the installation of backer rod or other backing material
13 prior to application of the polyurethane sealant. Allow for a minimum of 12 hours cure or as required by
14 sealant manufacturer.

15
16 **Moving Cracks:** Clean out crack by brushing and oil-free compressed air. Fill crack with polyurethane
17 sealant. Allow for a minimum of 12 hours cure or as required by sealant manufacturer. Following full
18 curing of primer, apply waterproofing resin and a 4 inch (10 cm) wide strip of membrane (resin and fleece)
19 in strict accordance with Membrane manufacturer's written instructions.

20 21 **CAP SHEET TEMPORARY WATERPROOFING/VAPOR RETARDER INSTALLATION**

22 Install mineral-surfaced cap sheet in accordance with cap sheet manufacturer's current published specifications and
23 recommendations for use with adhered waterproofing.

24
25 **Mineral Surfaced Cap Sheet Self-Adhered Attachment:** Follow cap sheet manufacturer's recommendations
26 for the appropriate application procedure.

27
28 Neatly fit cap sheet to all penetrations, projections, curbs, and walls. Extend over all nailers. Cap sheet shall be
29 overlapped a minimum of 3 inches for side laps and 6 inches for end laps. Seal at penetrations, projections, curbs
30 and walls with urethane-based sealant. Do not use asphaltic flashing cement.

31 32 **PRIMER APPLICATION**

33 **General:**

34 Mix and apply two-component primer in strict accordance with written instructions of Membrane
35 Manufacturer.

36
37 Substrate surface must be dry, with any remaining dust or loose particles removed using clean, dry, oil-free
38 compressed air, industrial vacuum, cloth wipe or a combination of methods.

39
40 Do not apply primer on any substrate containing asphalt, coal-tar pitch, creosote or penta-based materials
41 unless approved in writing by Membrane Manufacturer. Some substrates may require additional
42 preparation before applying primer.

43
44 **Mixing of Quick-Dry Kempertec EP5 Primer:**

45
46 Premix primer Component A thoroughly with a spiral agitator or stir stick.

47
48 Pour primer Component B into Component A and mix the components for approximately 2 minutes with a
49 clean spiral agitator on slow speed or stir stick without creating any bubbles or streaks. Do not aerate.

50
51 Primer solution should be a uniform color, with no light or dark streaks present.

52
53 Do not thin primer. Determine required primer coverage for each substrate material/condition and apply in
54 strict accordance with written instructions of Membrane Manufacturer.

55
56 **Application:**

1 Roll or brush primer evenly onto the surface to fully saturate the substrate in one application. Do not allow
2 primer to pond or collect in low areas. Follow manufacturer's recommended application rates to ensure that
3 a thin layer of cured primer remains on the substrate surface.
4

5 Apply primer only up to the edge of the membrane flashing terminations. Primer application past the
6 membrane terminations requires surfacing with an approved material.
7

8 For EP/EP5 primer applications over cementitious substrates where protection from substrate wetness is
9 required, apply primer coat at a heavier application rate until pore saturation is achieved.
10

11 For all EP/EP5 primer applications, apply kiln-dried sand into final coat of EP/EP5 primer while still wet at
12 the rate of 50 lbs. per 100 square feet.
13

14 Allow standard primers to cure for a minimum of 12 hours before membrane application. Allow quick-dry
15 primers to cure for a minimum of 4 hours before membrane application. Membrane must be applied to
16 primer only when completely dry and without tack.
17

18 Exposure of the primer in excess of 8 days or premature exposure to moisture may require removal and
19 application of new primer. Do not apply new primer over exposed primer older than 8 days, primer
20 prematurely exposed to moisture, or primer used as temporary waterproofing, unless approved in writing
21 by the Membrane Manufacturer.
22
23

24 Epoxy Primer: Kempertec EP/EP5 primer. Two-component, solvent-free epoxy resin for use in improving adhesion
25 of membrane to cementitious/masonry substrate surfaces.
26

27 Cold Weather Additive: Additive specifically designed to accelerate the resin reaction time at ambient temperatures
28 below 50 degrees F (10 degrees C). Accelerator to be used with cream resin Component A prior to mixing of multi-
29 component resin.
30

31 **MEMBRANE APPLICATION**

32 General:

33 Apply the waterproofing membrane immediately following full curing of the primer in order to obtain the
34 best bond between primer and membrane.
35

36 Mix and apply cold fluid-applied reinforced polyurethane waterproofing membrane in strict accordance
37 with written instructions of Membrane Manufacturer. Use only proprietary membrane resins and materials,
38 as supplied by the membrane manufacturer.
39

40 Primed substrate surface shall be dry, with any remaining dust or loose particles removed using clean, dry,
41 oil-free compressed air, industrial vacuum, cloth-wipe or a combination.
42

43 Protect all areas where membrane has been installed. Do not work off installed membrane during
44 application of remaining work before 48 hours of curing. Movement of materials and equipment across
45 installed membrane is not acceptable. If movement is necessary, provide complete protection of affected
46 areas.
47

48 Closely follow Membrane Manufacturer's recommendation for hot and cold weather application. Monitor
49 surface and ambient temperatures, including the effects of wind chill.
50

51 Mixing of Kemperol 2K-PUR Resin:

52 Mix resin Component A (cream formulation) with a spiral agitator until the liquid is a uniform cream color.
53 If the ambient temperature is below 50 degrees F (10 degrees C), then a weather related additive should be
54 combined and mixed into the Component A.
55

1 Accelerator should be added to resin Component A when ambient temperature is 50 degrees F (10 degrees
2 C) and below. Mix accelerator with the spiral agitator for 2 minutes or until both liquids are thoroughly
3 blended.

4
5 Pour entire resin Component B into entire resin Component A and thoroughly mix components with a clean
6 spiral agitator. Resin solution should be a uniform color, with no light or dark streaks present. Mix only full
7 units, do not break down units.

8
9 Resin pot life is approximately 30 minutes.

10 11 Application of Resin/Fleece:

12 Apply mixed resin to the prepared surface at the manufacturer's recommended application rate. Resin
13 should be rolled or brushed liberally and evenly onto the surface using a broad, even stroke. Cover one
14 working area at a time, between 15 - 20 SF (1.4 - 1.9 m²).

15
16 Roll out dry polyester fleece onto the liquid resin mix, making sure the SMOOTH SIDE IS FACING UP
17 (natural unrolling procedure), avoiding any folds and wrinkles. Fleece will begin to rapidly saturate with
18 the liquid resin mix. Use a medium nap roller or brush to work the resin into the fleece, saturating from the
19 bottom up, and eliminating air bubbles, wrinkles, etc. Appearance of the saturated fleece should be light
20 opaque amber with no white spots. White spots are indications of unsaturated fleece or lack of adhesion. It
21 is important to correct these faults before the resin cures.

22
23 Apply additional liquid resin mix on top of fleece at the manufacturer's recommended application rate to
24 finish the saturation of the fleece. Roll this final coating into the fleece, which will result in a glossy
25 appearance. The fleece can only hold so much resin and all excess should be rolled forward to the
26 unsaturated fleece, eliminating ponding or excessive build-up of the resin. The correct amount of resin will
27 leave no whiteness in fleece and there will be a slightly fibrous surface texture. Final resin coating should
28 be smooth and uniform.

29
30 Approximately 2/3 of the total resin should be applied to the substrate below the fleece reinforcement, and
31 1/3 of the total resin should be applied over the fleece reinforcement.

32
33 Prevent contact between mixed/unmixed resin and new/existing membrane. If any unmixed resin contacts
34 membrane surface remove immediately and clean thoroughly with a cloth rag.

35
36 At all fleece seams, allow a 2 inches (5 cm) overlap for all side joints and a 4 inches (10 cm) overlap for all
37 end joints.

38
39 At membrane tie-offs, clean in-place membrane with MEK (methyl ethyl ketone) solvent or acetone once
40 resin has cured. Allow solvents to fully evaporate before application of new resin.

41 42 **FLASHING APPLICATION**

43 All metal flashings, termination bars and scupper materials to be furnished and installed by Section 07 53 23.
44 Coordinate work accordingly.

45 46 Field Fabricated Control or Expansion Joint Flashing:

47 Grind or otherwise bevel the inside edges of the joint opening to provide a smooth transition edge for the
48 fleece.

49
50 Flashing typically consists of a fully saturated membrane bottom layer looped into the joint as a cradle, a
51 compressible foam or rubber insert at 25 percent compression fitted into the joint, and a membrane top
52 layer applied over the joint. Extend both fleece layers 4 inches minimum onto the field substrate on both
53 sides of the joint.

54
55 Apply the field membrane over the entire joint area.
56

1 **MEMBRANE PREPARATION FOR SURFACINGS AND COATINGS**

2 Membrane must be clean and dry, and free of all contaminants that may interfere with the adhesion of the surfacing
3 and coating to the membrane surface.

4
5 Membrane exposed less than 48 hours prior to application of surfacing and coating materials does not require special
6 surface preparation. It is highly recommended that all surfacing and coating materials be applied to the membrane
7 surface within 48 hours.

8
9 Membrane exposed longer than 48 hours will require sanding/scuffing of the surface to remove the hard gloss finish,
10 followed by an MEK or acetone solvent wipe.

11
12 **TEMPORARY CLOSURES AND WATERSTOPS**

13 Ensure that moisture does not damage any completed section of the new waterproofing system. Completion of
14 flashings, terminations, and temporary closures shall be completed as required to provide a watertight condition. All
15 temporary closures shall be made as recommended or required by the membrane manufacturer.

16
17 **PROTECTION**

18 Upon completion of waterproofing and flashings and associated work, institute appropriate procedures for
19 surveillance and protection of roofing during remainder of construction period. Protect all areas where membrane
20 has been installed

21
22 Protect finished waterproofing membrane from damage by other trades by the use of a cushioning layer such as 1-
23 inch thick expanded polystyrene insulation and an impact layer such as 1/2- inch thick exterior-grade plywood.

24
25 Do not allow waste products containing petroleum, grease, acid, solvents, vegetable or mineral oil, animal oil,
26 animal fat, etc. or direct steam venting to come into direct contact with the membrane unless approved by
27 manufacturer's chemical resistance chart.

28
29 Do not store construction materials on unprotected membrane surfaces.

30
31 Membrane areas that are observed to be trafficked or used as a storage/working platform shall be inspected and
32 immediately repaired.

33
34 **FIELD QUALITY CONTROL**

35 Final Inspection: A meeting at the completion of the project with the membrane manufacturer's technical field
36 representative to evaluate the completed installation of the field and flashing membrane. All punch list items are to
37 be completed prior to the scheduled meeting.

38
39 **CLEANING**

40 Clean-Up: Site clean-up, including both interior and exterior building areas that have been affected by construction,
41 shall be restored to preconstruction condition.

42
43 Waterproofing materials, components and accessories shall be removed from Site and taken to a legal dumping area
44 authorized to receive such materials.

45
46 Disposal of Primer and Resin: Cured resin may be disposed of in standard landfills. Uncured resin is considered a
47 hazardous material and must be handled as such, in accordance with local, state and federal regulation

48
49 **CLOSEOUT**

50 Correction of Work: Work that does not conform to specified requirements including tolerances, slopes, and finishes
51 shall be corrected and/or replaced. Any deficiencies of membrane application, termination and/or protection as noted
52 during the Membrane Manufacturer's inspections shall be corrected and/or replaced.

53
54
55 **END OF SECTION**

56 **07 14 16**

1 **SECTION 07 53 23**
2 **ETHYLENE-PROPYLENE-DIENE-MONOMER ROOFING (EPDM)**

3
4 **PART 1: GENERAL**

5
6
7 **SCOPE**

8 The work under this section shall consist of providing all work, materials, labor, equipment, and supervision
9 necessary to provide for the fabrication and installation of an adhered EPDM roofing system and such features as
10 required in these specifications and on the drawings. Included are the following topics:

11
12 **PART 1 - GENERAL**

- 13 Scope
- 14 Related Work
- 15 Reference Standard
- 16 Submittals
- 17 Quality Assurance
- 18 Delivery, Storage and Handling
- 19 Project Conditions
- 20 Warranty

21 **PART 2 – PRODUCTS**

- 22 Manufacturers
- 23 Performance Requirements
- 24 Roofing System Description
- 25 EPDM Membrane Materials
- 26 Roof Insulation

27 **PART 3 - EXECUTION**

- 28 Preparation
- 29 Roofing Installation – General
- 30 Insulation Installation
- 31 Scuppers and Ventilation Box Installation
- 32 Single-Ply Membrane Installation
- 33 Flashing and Accessories Installation
- 34 Field Quality Control
- 35 Cleaning
- 36 Protection

37
38 **RELATED WORK**

39 Applicable provisions of Division 1 shall govern this Section.

40
41 Section 07 14 16 – Cold Fluid Applied Waterproofing

42 Section 07 62 00 – Sheet Metal Flashing and Trim

43
44 **REFERENCE STANDARDS**

45 ASTM D 1079 and glossary of NRCA’s “The NRCA Roofing and Waterproofing Manual” apply to work in this
46 Section

47
48 ASTM C1289 - Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board; 2014.

49
50 **SUBMITTALS**

51 Product Data:

52 Provide membrane manufacturer's printed data sufficient to show that all components of roofing system, including
53 insulation and fasteners, comply with the specified requirements and with the membrane manufacturer's
54 requirements and recommendations for the system type specified; include data for each product used in conjunction
55 with roofing membrane.

1 Samples for Verification: Submit samples of roofing/EPDM, base sheet and termination bar
2
3 Shop Drawings:
4 Provide the roof membrane manufacturer's standard details customized for this project for all relevant
5 conditions, including flashings, base tie-ins, terminations, high point of parapets, expansion joints, 3
6 different scuppers penetrations, and ventilation box flashing
7
8 Provide drawing of tapered insulation, provide project-specific layout and total thickness spot elevations
9
10 Installer Qualifications: Letter from manufacturer attesting that the roofing installer meets the specified
11 qualifications.
12
13 Pre-Installation Notice: Copy of notice to show that manufacturer's required Pre Installation Notice (PIN) has been
14 accepted and approved by the manufacturer.
15
16 Close-out Submittals:
17 Maintenance Data for EPDM roofing system
18
19 Warranty: Fully executed warranty with all applicable signatures
20
21 **QUALITY ASSURANCE**
22 Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting on site to discuss the
23 proper installation of materials and requirements to achieve the warranty.
24
25 Required Attendance: All parties directly influencing the quality of roofing work or affected by the
26 performance of roofing work; including but not limited to Owner, architect, testing and inspecting agency,
27 roofing installer, roofing system manufacturer's representative, Section 07 14 16 Cold Fluid Applied
28 Waterproofing installer and representative and Section 07 62 00 Sheet Metal Flashing and Trim installer
29 and representative.
30
31 Review construction schedule and sequencing. Verify availability of materials, Installer's personnel,
32 equipment, and facilities needed to make progress and avoid delays.
33
34 Review methods and procedures related to roofing installation, including manufacturer's written
35 instructions
36
37 Review base flashings, special roofing details (3 unique scupper details and ventilation box detail), roof
38 drainage, roof penetrations and conditions of other construction that affects roofing system
39
40 Review temporary protection requirements for roofing system during and after installation
41
42 Review required inspection, testing, certifying procedures.
43
44 Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions,
45 including possibility of temporary roofing.
46
47 Installer Qualifications: Current approval, license or authorization as applicator by the manufacturer
48
49 **DELIVERY, STORAGE AND HANDLING**
50 Deliver materials in manufacturer's unopened containers, identified with name, brand, type, and grade.
51
52 Store products in manufacturer's unopened packaging until ready for installation.
53
54 Protect materials from contamination, dampness, freezing, or overheating in accordance with manufacturer's
55 instructions.

1 Keep combustible materials away from ignition sources

2
3 **PROJECT CONDITIONS**

4 Comply with requirements of referenced standards and recommendations of material manufacturers for
5 environmental conditions before, during, and after installation.

6
7 **Protection of Work:**

8 Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by
9 manufacturer for optimum results. Do not install products under environmental conditions outside
10 manufacturer's absolute limits.

11
12 **WARRANTY**

13 Comply with all warranty procedures required by manufacturer, including notifications, scheduling, and inspections.

14
15 Warranty: Full system warranty; approved manufacturer's 30-year Limited Warranty covering membrane, roof
16 insulation, and membrane accessories.

17
18 Limit of Liability: No dollar limitation

19
20 **Scope of Coverage:**

21 Repair leaks in the roofing system caused by ordinary wear and tear of the elements, manufacturing
22 defect in approved system's brand materials, defective workmanship used to install the materials and
23 damage due to winds up to 55 mph (88 km/h).

24
25 **Not Covered:**

26 Damage due to winds in excess of 55 mph (88 km/h), damage due hurricanes or tornadoes, damage due
27 to hail, intentional damage and unintentional damage due to normal rooftop inspections, maintenance,
28 or service.

29
30
31 **PART 2: PRODUCTS**

32
33 **MANUFACTURERS**

34 Basis-of-Design Product: The design for the EPDM roofing system is based on a product by Firestone Building
35 Products. Subject to compliance with requirements, provide either the named product or submit for approval, a
36 comparable product.

37
38 **Acceptable Manufacturer for Roofing and Insulation:**

39 Firestone Building Products LLC, Carmel, IN. www.firestonebpco.com

40
41 Carlisle Syntec Systems, Carlisle, PA. www.carlisesyntec.com

42
43 **PERFORMANCE REQUIREMENTS**

44 **General Performance:** Installed roofing and base flashings shall withstand industry standard uplift pressures,
45 thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication,
46 installation, or other defects in construction. Roofing and base flashings shall remain watertight.

47
48 **Accelerated Weathering:** Roofing system shall withstand 2000 hours of exposure when tested according to
49 ASTM G 152, ASTM G 154, or ASTM G 155.

50
51 **Impact Resistance:** Roofing system shall resist impact damage when tested according to ASTM D 3746 or
52 ASTM D 4272.

53
54 **Material Compatibility:** Roofing materials shall be compatible with one another and adjacent materials under
55 conditions of service and application required, as demonstrated by roofing manufacturer based on testing and field
56 experience.

1 **ROOFING SYSTEM DESCRIPTION**

2 Roofing System: Fully adhered, ethylene-propylene-diene-monomer (EPDM) single-ply membrane that complies
3 with applicable state and local building code requirements.

4
5 Roofing System Components (from top of the roof down):

6 Membrane and insulation

7
8 **EPDM MEMBRANE MATERIALS**

9 Roofing and Flashing Membrane: Black, cured synthetic single-ply membrane composed of Ethylene-propylene-
10 diene-monomer (EPDM) with the following properties:

11 Thickness: 0.090 inch (2.2 mm)

12
13 Nominal Thickness Tolerance: Plus/minus 10 percent

14
15 Acceptable Product: RubberGard Platinum EPDM Membrane by Firestone.

16
17 Self-Adhesive Flashing Membrane: Semi-cured 45 mil EPDM membrane laminated to 35 mil (0.9 mm) EPDM tape
18 adhesive

19
20 Pre-Molded Pipe Flashings: EPDM, molded for quick adaptation to different sized pipes

21
22 Self-Adhesive Lap Splice Tape: 35 mil (0.9 mm) EPDM-based, formulated for compatibility with EPDM membrane
23 and high-solids primer

24
25 Splice Adhesive: Synthetic polymer-based, formulated for compatibility with EPDM membrane and metal surfaces

26
27 Adhesive Primer: Synthetic rubber based primer formulated for compatibility with EPDM membrane and tape
28 adhesive, with VOC content less than 2.1 lb/gal (250 g/L)

29
30 Seam Edge Treatment: EPDM rubber-based sealant, formulated for sealing exposed edges of membrane at seams

31
32 Pourable Sealer: Two-part polyurethane, two-color for reliable mixing

33
34 Water Block Seal: Butyl rubber sealant for use between two surfaces, not exposed

35
36 Metal Plates and Strips Used for Fastening Membrane and Insulation: Steel with Galvalume coating; corrosion-
37 resistance meeting FM 4470 criteria.

38
39 Termination Bars: Aluminum bars with integral caulk ledge; 1.3 inches (33 mm) wide by 0.10 inch (2.5 mm) thick

40
41 **ROOF INSULATION**

42 Polyisocyanurate Board Insulation: Closed cell polyisocyanurate foam with black glass reinforced mat laminated to
43 faces, complying with ASTM C1289 Type II Class 1, with the following additional characteristics:

44 Thickness: One layer of 1.0" and one layer of 0.5" 4x4 ISO 95+ using ISO Stick Insulation adhesive

45
46 Compressive Strength: 20 psi (138 kPa) when tested in accordance with ASTM C1289.

47
48 Ozone Depletion Potential: Zero; made without CFC or HCFC blowing agents.

49
50 Recycled Content: 19 percent post-consumer and 15 percent post-industrial, average.

51
52 Acceptable Product: ISO 95+ GL Polyisocyanurate Insulation by Firestone.

53
54 Adhesive for Insulation Attachment: Type as required by roof membrane manufacturer for roofing system and
55 warranty to be provided; use only adhesives furnished by roof membrane manufacturer

56 ISO Stick insulation adhesive.

1 Apply to substrate in a band spaced a minimum of 4" O.C. over the entire roof.
2

3 Tapered Insulation: Provide factory-tapered insulation boards where indicated for sloping to drain. Maximum
4 board thickness at high points of slopes is 3 inches.
5
6

7 **PART 3: EXECUTION** 8 9

10 **PREPARATION**

11 Remove all of the existing roof system down to the existing built-up-roof including all existing composition base
12 flashings. Dispose of all materials properly. Perform asbestos removal in accordance with federal, state and local
13 regulations and dispose of waste in legal manner.

14 At penetrations, remove all existing flashings, including lead, asphalt, mastic, etc.
15

16 At walls, curbs, and other vertical and sloped surfaces, remove loose and unsecured flashings; remove
17 mineral surfaced and coated flashings; remove excessive asphalt to provide a smooth, sound surface for
18 new flashings.
19

20 Remove existing ballast, metal scuppers, EPDM membrane and insulation down to existing built-up-roof
21

22 Perimeter cant strip sand built-up-roofing to remain in place
23

24 Repair damage to existing built-up-roofing by using App Smooth Surface Modified Bitumen torch grade
25 membrane (product equal to Firestone APP 160).
26

27 Take appropriate measures to ensure that fumes from adhesive solvents are not drawn into the building through air
28 intakes.
29

30 Prior to proceeding, prepare roof surface so that it is clean, dry, and smooth, and free of sharp edges, fins, roughened
31 surfaces, loose or foreign materials, oil, grease and other materials that may damage the membrane.
32

33 Fill all surface voids in the immediate substrate that are greater than 1/4 inch (6 mm) wide with fill material
34 acceptable insulation to membrane manufacturer.
35

36 Prime existing built-up-roofing surface using asphalt primer.
37

38 Seal, grout, or tape deck joints, where needed, to prevent bitumen seepage into building.
39

40 **ROOFING INSTALLATION - GENERAL**

41 Install roofing, insulation, flashings, and accessories in accordance with roofing manufacturer's published
42 instructions and recommendations for the approved roofing system. Where manufacturer provides no instructions or
43 recommendations, follow good roofing practices and industry standards. Comply with federal, state, and local
44 regulations.
45

46 Obtain all relevant instructions and maintain copies at project site for duration of installation period.
47

48 Do not start work until Pre-Installation Notice has been submitted to manufacturer as notification that this project
49 requires a manufacturer's warranty.
50

51 Perform work using competent and properly equipped personnel.
52

53 Temporary closures, which ensure that moisture does not damage any completed section of the new roofing system,
54 are the responsibility of the applicator. Completion of flashings, terminations, and temporary closures shall be
55 completed as required to provide a watertight condition.
56

1 Install roofing membrane only when surfaces are clean, dry, smooth and free of snow or ice; do not apply roofing
2 membrane during inclement weather or when ambient conditions will not allow proper application; consult
3 manufacturer for recommended procedures during cold weather. Do not work with sealants and adhesives when
4 material temperature is outside the range of 60 to 80 degrees F (15 to 25 degrees C).

5
6 Protect adjacent construction, property, vehicles, and persons from damage related to roofing work; repair or restore
7 damage caused by roofing work.

8
9 Protect from spills and overspray from bitumen, adhesives, sealants and coatings.

10
11 Particularly protect masonry, metal, glass, plastic, and painted surfaces from bitumen, adhesives, and
12 sealants within the range of wind-borne overspray.

13
14 Protect finished areas of the roofing system from roofing related work traffic and traffic by other trades.

15
16 Until ready for use, keep materials in their original containers as labeled by the manufacturer.

17
18 Consult membrane manufacturer's instructions, container labels, and Material Safety Data Sheets (MSDS) for
19 specific safety instructions. Keep all adhesives, sealants, primers and cleaning materials away from all sources of
20 ignition.

21 22 **INSULATION INSTALLATION**

23 Install insulation in configuration and with attachment method(s) specified in PART 2, under Roofing Insulation.

24
25 Install one layer of 1 inch and one layer of ½ inch by 4'x4 Polyisocyanurate 95 plus using ISO Stick insulation
26 adhesive. Apply the adhesive on the substrate in a band spaced a minimum of 4" o.c. over the entire roof area.

27
28 Install the suggested tapered Polyisocyanurate system using the same method as the flat Polyisocyanurate.

29
30 Install only as much insulation as can be covered with the completed roofing system before the end of the day's
31 work or before the onset of inclement weather.

32 Lay roof insulation in courses parallel to roof edges.

33
34 Neatly and tightly fit insulation to all penetrations, projections, and nailers, with gaps not greater than 1/4 inch (6
35 mm). Fill gaps greater than 1/4 inch (6 mm) with acceptable insulation. Do not leave the roofing membrane
36 unsupported over a space greater than 1/4 inch (6 mm).

37 38 **SCUPPERS AND VENTILATION BOX INSTALLATION**

39 Install custom copper gutters and ventilation boxes supplied by Section 07 62 00 – Sheet Metal Flashing and Trim

40 41 **SINGLE-PLY MEMBRANE INSTALLATION**

42 Verify that the copper scuppers and ventilation boxes are secured

43
44 Beginning at low point of roof, place membrane without stretching over substrate and allow to relax at least 30
45 minutes before attachment or splicing; in colder weather allow for longer relax time.

46
47 Lay out the membrane pieces so that field and flashing splices are installed to shed water.

48
49 Install membrane without wrinkles and without gaps or fishmouths in seams; bond and test seams and laps in
50 accordance with membrane manufacturer's instructions and details.

51
52 Install membrane adhered to the substrate, with edge securement as specified.

53 Adhered Membrane: Bond membrane sheet to substrate using membrane manufacturer's recommended bonding
54 material, application rate, and procedures.

55

1 Edge Securement: Secure membrane at all locations where membrane terminates or goes through an angle change
2 greater than 2 in 12 inches (1:6) using mechanically fastened reinforced perimeter fastening strips or plates as
3 recommended by roofing manufacturer.

4
5 Exceptions: Round pipe penetrations less than 18 inches (460 mm) in diameter and
6 square penetrations less than 4 inches (200 mm) square.

7 8 **FLASHING AND ACCESSORIES INSTALLATION**

9 Install flashings, including laps, splices, joints, bonding, adhesion, and attachment, as required by membrane
10 manufacturer's recommendations and details.

11
12 Metal Accessories: Install metal flashings, reglet flashing, counter flashing, termination bars in locations indicated
13 on the drawings and per manufacturers warranted system, with horizontal leg of edge member over membrane and
14 flashing over metal onto membrane.

15 Follow roofing manufacturer's instructions.

16 Remove protective plastic surface film immediately before installation.

17
18 Install water block sealant under the membrane anchorage leg.

19
20 Flash with manufacturer's recommended flashing sheet unless otherwise indicated.

21
22 Where single application of flashing will not completely cover the metal flange, install additional piece of
23 flashing to cover the metal edge.

24
25 If the roof edge includes a gravel stop and sealant is not applied between the laps in the metal edging,
26 install an additional piece of self-adhesive flashing membrane over the metal lap to the top of the gravel
27 stop; apply seam edge treatment at the intersections of the two flashing sections.

28
29 When the roof slope is greater than 1:12, apply seam edge treatment along the back edge of the flashing.

30 31 32 **FIELD QUALITY CONTROL**

33 Inspection by Manufacturer: Provide final inspection of the roofing system by a Technical Representative employed
34 by roofing system manufacturer specifically to inspect installation for warranty purposes (i.e. not a sales person).

35
36 Perform all corrections necessary for issuance of warranty.

37 38 **CLEANING**

39 Clean all contaminants generated by roofing work from building and surrounding areas, including bitumen,
40 adhesives, sealants, and coatings.

41
42 Repair or replace building components and finished surfaces damaged or defaced due to the work of this section;
43 comply with recommendations of manufacturers of components and surfaces.

44
45 Remove leftover materials, trash, debris, equipment from project site and surrounding areas.

46 47 **PROTECTION**

48 Where construction traffic must continue over finished roof membrane, provide durable protection and replace or
49 repair damaged roofing to original condition.

50
51
52 **END OF SECTION**

53 **07 53 23**

1 **SECTION 07 62 00**
2 **SHEET METAL FLASHING AND TRIM**

3
4 **PART 1 - GENERAL**

5
6 **SCOPE**

7 The work under this section shall consist of providing all work, materials, labor, equipment, and supervision neces-
8 sary to provide for custom copper fabrication, sheet metal flashing and trim and such features as required in these
9 specifications and on the drawings. Included are the following topics:

10
11 **PART 1 - GENERAL**

12 Scope
13 Related Documents
14 Reference Standards
15 Submittals
16 Quality Assurance
17 Delivery, Storage and Handling
18 Warranty

19 **PART 2 – PRODUCTS**

20 Sheet Metals
21 Miscellaneous Materials
22 Fabrication, General
23 Copper Fabrications

24 **PART 3 - EXECUTION**

25 Examination
26 Fabrication
27 Workmanship
28 Installation, General
29 Copper Scupper Installation
30 Roof Flashing Installation
31 Cleaning and Protection

32
33 **RELATED DOCUMENTS**

34 Applicable provisions of Division 1 shall govern this Section.

35
36 Section 07 14 16 Cold Fluid Applied Waterproofing
37 Section 07 53 23 EPDM

38
39 **REFERENCE STANDARDS**

40 AISI – American Iron and Steel Institute
41
42 ASTM A653 – Steel Sheet, Zinc-Coated (Galvanized)
43
44 ASTM B32 – Solder Metal
45
46 ASTM C920 – Elastomeric Joint Sealants
47
48 NRCA – Roofing and Waterproofing Manual
49
50 SMACNA – Architectural Sheet Metal Manual

51
52 **SUBMITTALS**

53 Product Data:

54 Provide sheet metal flashing and trim manufacturer's printed data sufficient to show that all components of the items
55 comply with the specified requirements and with the sheet metal flashing and trim manufacturer's requirements and
56 recommendations for the types specified; include data for each product used in conjunction with roofing system.

1 Shop Drawings:

2 Provide the sheet metal flashing and trim manufacturer's standard details customized for this project for all
3 relevant conditions. Provide dimensioned detail fabrication and installation layouts. Distinguish between
4 shop- and field-assembled work. Include details of roof-penetration flashing, all edge conditions and con-
5 nections to adjoining work and special conditions.

6
7 Provide dimensioned detail fabrication and installation drawings of the custom copper scuppers and venti-
8 lation boxes at scale of not less than 1-1/2 inches per 12 inches.

9
10 Include details for joining, supporting, and securing, including layout and spacing of fasteners, cleats, clips,
11 and other attachments.

12
13 Samples for Verification:

14 Copper Sheet: 12-inch square

15
16 Pre-Finished Galvanized Sheet Metal Flashing: 4 inches to 12 inches long by actual width of each unit, in-
17 cluding finished seam and in required profile. Selection from the manufacturers full standard color samples.

18
19 Close-out Submittals:

20 Maintenance Data for sheet metal flashing, trim and accessories

21
22 Warranty: Fully executed warranty with all applicable signatures

23
24 **QUALITY ASSURANCE**

25 Pre-Installation Conference: Before start of roofing work, Contractor shall hold a meeting on site to discuss the
26 proper installation of materials and requirements to achieve the warranty.

27
28 Required Attendance: All parties directly influencing the quality of roofing work or affected by the perfor-
29 mance of roofing work; including but not limited to Owner, architect, testing and inspecting agency, sheet
30 metal flashing and trim installer and representative, Section 07 14 16 Cold Fluid Applied Waterproofing in-
31 staller and representative and Section 07 53 23 EPDM installer and representative.

32
33 Review construction schedule and sequencing. Verify availability of materials, Installer's personnel,
34 equipment, and facilities needed to make progress and avoid delays.

35
36 Review special roof details (3 unique scupper details and ventilation box detail), roof drainage, roof-
37 penetration flashing and condition of other construction that affect sheet metal flashing and trim.

38
39 Review requirements for warranty, insurance and certificates if applicable.

40
41 Review sheet metal flashing observation and repair procedures after flashing installation.

42
43 Review required inspection, testing, certifying procedures.

44
45 Review weather and forecasted weather conditions and procedures for coping with unfavorable conditions,
46 including possibility of temporary roofing.

47
48 **DELIVERY, STORAGE, AND HANDLING**

49 Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, dent-
50 ing, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and mason-
51 ry.

52
53 Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity,
54 except to extent necessary for period of sheet metal flashing and trim installation.

1 **WARRANTY**

2 Special Warranty on Finishes: Manufacturer agrees to repair finish or replace sheet metal flashing and trim that
3 shows evidence of deterioration of factory-applied finishes within specified warranty period.

4
5 Exposed Panel Finish: Deterioration includes, but is not limited to, the following:

6
7 Color fading more than 5 Hunter units when tested according to ASTM D 2244.

8
9 Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.

10
11 Cracking, checking, peeling, or failure of paint to adhere to bare metal.

12
13 Finish Warranty Period: 20 years from date of Substantial Completion.

14
15
16 **PART 2 - PRODUCTS**

17
18 **SHEET METALS**

19 General: Protect mechanical and other finishes on exposed surfaces from damage by applying strippable, temporary
20 protective film before shipping.

21
22 Copper Sheet: ASTM B 370, cold-rolled copper sheet, H00 or H01 temper.

23
24 Non-patinated Exposed Finish: Mill.

25
26 Prefinished Galvanized: ASTM A653, G-90; 24-gauge galvanized steel coated with a minimum 70% Kynar (Kynar
27 500) flouropolymer resin of 0.9-1.1 mil total dry film thickness and primed on the reverse side a wash coat of 0.3-
28 0.4 mil dry film thickness. Color to be chosen from the manufacturer's standard custom color selection. Texture
29 shall be smooth.

30
31 Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish,
32 consisting of prime coat and wash coat with minimum total dry film thickness of 0.5 mil (0.013 mm).

33
34 **MISCELLANEOUS MATERIALS**

35 General: Provide materials and types of fasteners, solder, protective coatings, sealants, and other miscellaneous
36 items as required for complete sheet metal flashing and trim installation and as recommended by manufacturer of
37 primary sheet metal or manufactured item unless otherwise indicated.

38
39 Fasteners for Copper Sheet: Copper, hardware bronze or passivated Series 300 stainless steel.

40
41 Copper Mesh: 100% pure copper; wire diameter: 0.032 inches; width opening: 0.031; open area: not more than 24%

42
43 Fasteners for Prefinished Galvanized: Series 300 stainless steel or hot-dip galvanized steel according to
44 ASTM A 153/A 153M or ASTM F 2329.

45
46 General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.

47
48 Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
49 Provide metal-backed EPDM or PVC sealing washers under heads of exposed fasteners bearing on
50 weather side of metal.

51
52 Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.

53
54 Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.

55
56 Solder: For Copper: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead

1 Sealant: ASTM C920, Type S, Grade NS, Class 25, Use NT, M, G, A or O; FS TT-S-00230C, Type II, Class A;
2 one-part polyurethane base, elastomeric joint sealing compound such as Sika Chemicals "Sikaflex 1a", Sonneborn-
3 Contech "Sonolastic NP1" or Tremco "Vulkem 116" or "Dymonic".
4

5 Flexible Flashing: 0.045" EPDM or 0.020" vinyl.

6 Other products, not specifically described, but required for a complete and proper installation of the work in this
7 section shall be selected by the Contractor subject to the approval of Owner
8

9 **FABRICATION, GENERAL**

10 General: Custom fabricate sheet metal flashing and trim to comply with details shown and recommendations in cited
11 sheet metal standard that apply to design, dimensions, geometry, metal thickness, and other characteristics of item
12 required. Fabricate sheet metal flashing and trim in shop to greatest extent possible.
13

14 Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance require-
15 ments, but not less than that specified for each application and metal.
16

17 Obtain field measurements for accurate fit before shop fabrication.
18

19 Form sheet metal flashing and trim to fit substrates without excessive oil canning, buckling, and tool
20 marks; true to line, levels, and slopes; and with exposed edges folded back to form hems.
21

22 Conceal fasteners and expansion provisions where possible. Do not use exposed fasteners on faces exposed
23 to view.
24

25 Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to tolerances specified
26 in MCA's "Guide Specification for Residential Metal Roofing."
27

28 Expansion Provisions: Form metal for thermal expansion of exposed flashing and trim.
29

30 Form expansion joints of intermeshing hooked flanges, not less than 1 inch (25 mm) deep, filled with butyl
31 sealant concealed within joints.
32

33 Use lapped expansion joints only where indicated on Drawings.
34

35 Sealant Joints: Where movable, non-expansion-type joints are required, form metal to provide for proper installation
36 of elastomeric sealant according to cited sheet metal standard.
37

38 Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, non-
39 corrosive metal.
40

41 Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
42

43 Do not use graphite pencils to mark metal surfaces.
44

45 **COPPER FABRICATIONS**

46 Parapet Scuppers: Fabricate scuppers to dimensions established by on-site field measuring.
47

48 Ventilation Boxes: Fabricate ventilation boxes to dimensions on drawings. Secure all edges of copper mesh screen-
49 ing to backside of ventilation opening with continuous solder joint.
50

51 Fabricate scuppers and ventilation boxes from 16 oz./sq. ft. (0.55 mm) thick copper
52
53
54
55
56

1 **PART 3 - EXECUTION**

2
3 **EXAMINATION**

4 Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation
5 tolerances, substrate, and other conditions affecting performance of the Work.

- 6
7 Verify compliance with requirements for installation tolerances of substrates.
8 Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

9
10 Proceed with installation only after unsatisfactory conditions have been corrected.

11
12 **FABRICATION**

13 Form sections true to shape, accurate in size, square and free from distortion or defects. Do not "punch" metal at
14 brake points.

15
16 Form all pieces in lengths of 8'-0" or 10'-0" where practical. Sections less than 3' long are unacceptable unless that
17 section comprises the entire run.

18
19 Unless detailed otherwise, hem exposed edges on underside 1/2"; fabricate vertical faces with bottom edge formed
20 outward 3/4" at 45 degrees and hemmed to form drip.

21
22 Outside corners shall be prefabricated such that the outside face of section is broken at corner; seam at corner is un-
23 acceptable. Miter and seam top of outside and inside corners using rivets and specified polyurethane or manufacturer
24 recommended and approved sealant. Corner pieces shall be a minimum of 18" in length, in both directions from the
25 corner.

26
27 **WORKMANSHIP**

28 Make all work weather and watertight throughout; provide allowances for material expansion and contraction.

29
30 Contractors workers shall carry a container or apron to deposit all metal cut offs, droppings or other debris created
31 by the work. Waste shall not be dropped to the roof and ground.

32
33 Sections shall be uniform, accurately fitted so as to line up straight and true and rigidly secured in place, without
34 kinks or buckles. Joints at corners and angles shall be smooth, tight and neatly mitered and seamed.

35
36 Unless detailed otherwise, lap all vertical joints between adjacent sections a minimum of 2".

37
38 Where metal is hooked to a continuous cleat, crimp metal to cleat along entire length.

39
40 Soldering:

41
42 Soldering shall be done with heavy soldering coppers of blunt design, properly tinned before using. Coppers
43 shall weigh not less than 10 pounds per pair. Use of a gas torch is not allowed.

44
45 Follow manufacturer's recommendations for cleaning, tinning and soldering metal. Tin edges of copper before
46 soldering. Wire brush all edges of lead-coated copper to a bright shine before soldering.

47
48 Soldering shall be done slowly to heat sheet metal thoroughly and to sweat solder completely through full width
49 of seam. Whenever possible, soldering shall be done in flat position; seams on slopes shall be soldered a sec-
50 ond time.

51
52 Clean all flux from metal after soldering is completed.

1 **INSTALLATION, GENERAL**

2 General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions
3 for thermal and structural movement. Use fasteners, solder, protective coatings, separators, sealants, and other mis-
4 cellaneous items as required to complete sheet metal flashing and trim system.

5
6 Install sheet metal flashing and trim true to line, levels, and slopes. Provide uniform, neat seams with minimum ex-
7 posure of solder, welds, and sealant.

8
9 Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and di-
10 mensions of surfaces to be covered before fabricating sheet metal.

11
12 Space cleats not more than 12 inches (300 mm) apart. Attach each cleat with at least two fasteners. Bend tabs over
13 fasteners.

14
15 Install exposed sheet metal flashing and trim with limited oil canning, and free of buckling and tool marks.
16 Torch cutting of sheet metal flashing and trim is not permitted.

17
18 Metal Protection: Where dissimilar metals contact each other, or where metal contacts pressure-treated wood or oth-
19 er corrosive substrates, protect against galvanic action or corrosion by painting contact surfaces with bituminous
20 coating or by other permanent separation as recommended by sheet metal manufacturer or cited sheet metal stand-
21 ard.

22
23 Coat concealed side of [uncoated-aluminum] [and] [stainless-steel] sheet metal flashing and trim with bi-
24 tuminous coating where flashing and trim contact wood, ferrous metal, or cementitious construction.

25
26 Underlayment: Where installing sheet metal flashing and trim directly on cementitious or wood substrates,
27 install underlayment and cover with slip sheet.

28
29 Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at max-
30 imum of 10 feet (3 m) with no joints within 24 inches (600 mm) of corner or intersection.

31
32
33 Conceal fasteners and expansion provisions where possible in exposed work and locate to minimize possibility of
34 leakage. Cover and seal fasteners and anchors as required for a tight installation.

35
36 Seal joints as required for watertight construction.

37
38 Use sealant-filled joints unless otherwise indicated. Embed hooked flanges of joint members not less than 1
39 inch (25 mm) into sealant. Form joints to completely conceal sealant. When ambient temperature at time of
40 installation is between 40 and 70 deg F (4 and 21 deg C), set joint members for 50 percent movement each
41 way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-
42 type joints at temperatures below 40 deg F (4 deg C).

43
44 **COPPER SCUPPER SYSTEM INSTALLATION**

45 General: Install copper scuppers to produce complete roof-drainage system according to cited sheet metal and
46 EPDM roofing standards.

47
48 Coordinate installation of roof perimeter flashing with installation of copper scuppers.

49
50 **ROOF FLASHING INSTALLATION**

51 General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's
52 written installation instructions, and cited sheet metal standard. Provide concealed fasteners where possible, and set
53 units true to line, levels, and slopes. Install work with laps, joints, and seams that are permanently watertight and
54 weather resistant.

1 Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing
2 in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches (100 mm) over base flashing.
3 Lap counterflashing joints minimum of 4 inches (100 mm). Secure in waterproof manner by means of snap-in instal-
4 lation and sealant or lead wedges and sealant OR interlocking folded seam or blind rivets and sealant unless other-
5 wise indicated.

6
7 Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other
8 items penetrating roof. Seal with elastomeric sealant and clamp flashing to pipes that penetrate roof.
9

10 **CLEANING AND PROTECTION**

11 Clean exposed copper surfaces of substances that interfere with uniform oxidation and weathering.

12
13 Clean and neutralize flux materials. Clean off excess solder.

14
15 Clean off excess sealants.

16
17 Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless
18 otherwise indicated in manufacturer's written installation instructions. On completion of sheet metal flashing and
19 trim installation, remove unused materials and clean finished surfaces as recommended by sheet metal flashing and
20 trim manufacturer. Maintain sheet metal flashing and trim in clean condition during construction.

21
22 Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by
23 finish touchup or similar minor repair procedures.

24
25 **END OF SECTION**

26 **07 62 00**

**SECTION 08 51 69
METAL STORM WINDOWS**

PART 1 - GENERAL

SCOPE

The work under this section shall consist of providing all work, materials, labor, equipment, and supervision necessary to provide for the fabrication and installation of metal storm window assemblies, fasteners and hardware and such features as required in these specifications and on the drawings. Included are the following topics:

PART1 - GENERAL

- Scope
- Related Work
- Performance Requirements
- Submittals
- Quality Assurance
- Delivery, Storage and Handing
- Warranty

PART 2 - MATERIALS

- Manufacturers
- Alloys
- Window Members
- Fasteners
- Glass and Glazing
- Glazing Material
- Assembly
- Sash
- Sill Extender
- Finish
- Screen

PART 3 – EXECUTION

- Examination
- Preparation
- Installation
- Cleaning and Protection

RELATED WORK

Applicable provisions of Division 1 shall govern this Section.

PERFORMANCE REQUIREMENTS

General: Provide glazing systems capable of withstanding normal thermal movement and wind and impact loads (where applicable) without failure, including loss or glass breakage attributable to the following: defective manufacture, fabrication, and installation; failure of sealants or gaskets to remain watertight and airtight; deterioration of glazing materials; or other defects in construction.

Design Wind Loads: Determine design wind loads applicable to Project from basic wind speed indicated in miles per hour (meters per second) at 33 feet (10 m) above grade, according to ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 6.5, "Method 2-Analytical Procedure," based on mean roof heights above grade indicated on Drawings.

Probability of Breakage for Vertical Glazing: 8 lites per 1000 for lites set vertically or not more than 15 degrees off vertical and under wind action.

Load Duration: 60 seconds or less.

1 **SUBMITTALS**

2 Product Data: For each storm window product and glazing material indicated.

3
4 **QUALITY ASSURANCE**

5 Installer Qualifications: An experienced installer who has completed glazing similar in material, design, and extent
6 to that indicated for this Project; whose work has resulted in glass installations with a record of successful in-service
7 performance; and who employs glass installers for this Project who are certified under the National Glass Associa-
8 tion's Certified Glass Installer Program.

9
10 Source Limitations for Glass: Obtain the following through one source from a single manufacturer for each glass
11 type: clear float glass.

12
13 Glass Product Testing: Obtain glass test results for product test reports in "Submittals" Article from a qualified test-
14 ing agency based on testing glass products.

15
16 Glass Testing Agency Qualifications: An independent testing agency accredited according to the NFRC CAP 1 Cer-
17 tification Agency Program.

18
19 **DELIVERY, STORAGE AND HANDLING**

20 Protect glazing materials according to manufacturer's written instructions and as needed to prevent damage to glass
21 and glazing materials from condensation, temperature changes, direct exposure to sun, or other causes.

22
23 **WARRANTY**

24 Manufacturer's standard form covering faulty materials, paint and workmanship of metal frame assembly.

25
26 Warranty Period: Five years from date of Substantial Completion.

27
28
29 **PART 2 – MATERIALS**

30
31 **MANUFACTURERS**

32 Basis-of-Design Product: The design for each glazing product is based on products by Allied Window, Inc. Subject
33 to compliance with requirements, provide either the named product or a comparable product by one of the other
34 manufacturers specified:

35
36 Allied Window, Inc.
37 Columbia Windows and Doors, Inc.
38 Weather King Windows and Doors, Inc.

39
40 **ALLOYS**

41 Aluminum shall be of commercial quality and of proper alloy for window construction free from defects impairing
42 strength and durability. All straight extruded sections shall be of 6063-T5 alloy and temper and shall have a mini-
43 mum ultimate tensile strength of 22,000 P.S.I. and a yield of 16,000 P.S.I.

44
45 **WINDOW MEMBERS**

46 Master frame members shall be of extruded aluminum with a 3/8" x 1 3/8" dimension. All extrusions shall be of
47 sufficient strength to perform as designed. Frame members shall have a nominal structural wall thickness of not less
48 than .062". All corner keys shall be of extruded aluminum.

49
50 **FASTENERS**

51 All screws and other miscellaneous fastening devices incorporated shall be zinc plated, cadmium plated or other
52 non-corrosive metals compatible with aluminum.

53
54 **GLASS AND GLAZING**

55 Glass shall not be less than "B" quality. Standard factory glazing shall be "DSB" (1/8"). Optional use of 5/32",
56 3/16" or tempered glass shall be determined by size of panels or code requirements.

1 **GLAZING MATERIAL**

2 Glass shall be held in place with removable and reusable vinyl glazing splines. Vinyl shall be manufactured from
3 virgin polyvinyl chloride. All corners shall be mitered.

4
5 **ASSEMBLY**

6 Fabricate glazing units in sizes required to glaze openings indicated for Project, with edge and face clearances, edge
7 and surface conditions, and bite complying with written instructions of product manufacturer and referenced glazing
8 publications, to comply with system performance requirements.

9
10 Grind smooth and polish exposed glass edges and corners.

11
12 **SASH**

13 Fixed sash at each opening

14
15 **SILL EXPANDER**

16 Sill expander shall be of "H" type with minimal wall thickness of .062: and .125" web thickness and modified to
17 permit weepage.

18
19 **FINISH**

20 The exposed surfaces of all aluminum members shall be clean and free from serious surface blemishes. Standard
21 finishes shall be electrostatically applied baked acrylic enamel in dark bronze. Painted finish shall meet AAMA
22 603.6.

23
24 **SCREEN**

25 None

26
27 **PART 3 – EXECUTION**

28
29 **EXAMINATION**

30 Examine framing glazing, with Installer present, for compliance with the following:

31
32 Manufacturing and installation tolerances, including those for size, squareness, and offsets at corners.

33
34 Presence and functioning of weep system.

35
36 Minimum required face or edge clearances.

37
38 Proceed with installation only after unsatisfactory conditions have been corrected.

39
40 **PREPARATION**

41 Clean glazing channels and other framing members receiving glass immediately before glazing. Remove coatings
42 not firmly bonded to substrates.

43
44 **INSTALLATION**

45 Comply with combined written instructions of manufacturers of glass, sealants, gaskets, and other glazing materials,
46 unless more stringent requirements are indicated, including those in referenced glazing publications.

47
48 Glazing channel dimensions; provide necessary bite on glass, minimum edge and face clearances, and adequate
49 sealant thicknesses, with reasonable tolerances. Adjust as required by Project conditions during installation.

50
51 Protect glass edges from damage during handling and installation. Remove damaged glass from Project site and
52 legally dispose of off Project site. Damaged glass is glass with edge damage or other imperfections that, when in-
53 stalled, could weaken glass and impair performance and appearance.

54
55 Apply primers to joint surfaces where required for adhesion of sealants, as determined by preconstruction sealant-
56 substrate testing.

1 Install setting blocks in sill rabbets, sized and located to comply with referenced glazing publications, unless other-
2 wise required by glass manufacturer. Set blocks in thin course of compatible sealant suitable for heel bead.

3
4 Do not exceed edge pressures stipulated by glass manufacturers for installing glass lites.

5
6 Provide spacers for glass lites where length plus width is larger than 50 inches (1270 mm) as follows:

7
8 Locate spacers directly opposite each other on both inside and outside faces of glass. Install correct size and
9 spacing to preserve required face clearances, unless gaskets and glazing tapes are used that have demonstrated
10 ability to maintain required face clearances and to comply with system performance requirements.

11
12 Provide 1/8-inch (3-mm) minimum bite of spacers on glass and use thickness equal to sealant width. With glaz-
13 ing tape, use thickness slightly less than final compressed thickness of tape.

14
15 Provide edge blocking where indicated or needed to prevent glass lites from moving sideways in glazing chan-
16 nel, as recommended in writing by glass manufacturer and according to requirements in referenced glazing pub-
17 lications.

18
19 Set glass lites in each series with uniform pattern, draw, bow, and similar characteristics.

20 21 **CLEANING AND PROTECTION**

22 Protect exterior glass from damage immediately after installation by attaching crossed streamers to framing held
23 away from glass. Do not apply markers to glass surface. Remove nonpermanent labels, and clean surfaces.

24
25 Protect glass from contact with contaminating substances resulting from construction operations, including weld
26 splatter. If, despite such protection, contaminating substances do come into contact with glass, remove substances
27 immediately as recommended by glass manufacturer.

28
29 Examine glass surfaces adjacent to or below exterior concrete and other masonry surfaces at frequent intervals dur-
30 ing construction, but not less than once a month, for buildup of dirt, scum, alkaline deposits, or stains; remove as
31 recommended in writing by glass manufacturer.

32
33 Remove and replace glass that is broken, chipped, cracked, or abraded or that is damaged from natural causes, acci-
34 dents, and vandalism, during construction period.

35
36 Wash glass on both exposed surfaces in each area of Project not more than four days before date scheduled for in-
37 spections that establish date of Substantial Completion. Wash glass as recommended in writing by glass manufac-
38 turer.

39 **END OF SECTION**

40 **08 51 69**

1 **SECTION 32 92 00**
2 **GRASSES**

3
4 **PART 1 - GENERAL**

5
6 **SCOPE**

7 The work under this section shall consist of providing all work, materials, labor, equipment, and supervision neces-
8 sary to provide for the installation of seed grass, turf renovation and such features as required in these specifications
9 and on the drawings. Included are the following topics:

10
11 **PART 1 - GENERAL**

- 12 Scope
- 13 Related Documents
- 14 Definitions
- 15 Submittals
- 16 Delivery, Storage and Handling
- 17 Guarantee

18 **PART 2 – PRODUCTS**

- 19 Seed
- 20 Fertilizers
- 21 Mulches
- 22 Soil Stabilizers

23 **PART 3 - EXECUTION**

- 24 Examination
- 25 Preparation
- 26 Seeding
- 27 Fertilizing
- 28 Mulching
- 29 Soil Stabilizers
- 30 Turf Renovation
- 31 Turf Maintenance
- 32 Satisfactory Turf
- 33 Clean-up and Protection

34
35 **RELATED DOCUMENTS**

36 Applicable provisions of Division 1 shall govern this Section.

37
38 All seeding, mulching and maintenance shall conform to the requirement set forth in the Wisconsin Statutes.

39
40 **DEFINITIONS**

41 Finish Grade: Elevation of finished surface of planting soil.

42
43 Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amend-
44 ments and perhaps fertilizers to produce a soil mixture best for plant growth.

45
46 Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or
47 backfill before planting soil is placed.

48
49 **SUBMITTALS**

50 Certification of Grass Seed: From seed vendor for each grass-seed monostand or mixture, stating the botanical and
51 common name, percentage by weight of each species and variety, and percentage of purity, germination, and weed
52 seed. Include the year of production and date of packaging.

53
54 Maintenance Data: Recommended procedures to be established by Owner for maintenance of turf during a calendar
55 year. Submit before expiration of required maintenance periods.

1 **DELIVERY, STORAGE, AND HANDLING**

2 Seed and Other Packaged Materials: Deliver packaged materials in original, unopened containers showing weight,
3 certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as
4 applicable.

5
6 **Bulk Materials:**

7 Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf
8 areas or plants.

9
10 Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-
11 bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walk-
12 ways.

13
14 Accompany each delivery of bulk materials with appropriate certificates.

15
16 **GUARANTEE**

17 All areas that have been seeded with turf shall be guaranteed to be in a healthy and flourishing condition as defined
18 in the Wisconsin Statutes. Acceptance for a period of 1 year from the date on the certificate of completion.

19
20 At any time within the period of the guarantee, the Contractor shall replace any seeded areas which for any reason,
21 have died or are in a dying condition, or which have failed to flourish in such a manner or to such a degree that their
22 usefulness or appearance has been impaired. Replacement shall include removal and repair of all affected work.
23 Seeded areas that have perished for any reason shall be reseeded or overseeded with the exact variety of turf seed
24 that was originally specified.

25
26 Following the completion of the repair, a re-inspection will be made prior to final acceptance.

27
28
29
30 **PART 2 - PRODUCTS**

31
32 **SEED**

33 Grass Seed: Fresh, clean, dry, new-crop seed complying with AOSA's "Rules for Testing Seeds" for purity and ger-
34 mination tolerances.

35
36 All seed shall conform to the requirement of the Wisconsin Statutes regarding noxious weed seed content.
37 No seed shall be used on the work later than one year after the germination test date which appears on the
38 label.

39
40 Seed shall be tested when required in accordance with the methods and procedures used in making purity
41 analyses and germination tests as adopted by the US Department of Agriculture in the Administration of
42 the Federal Seed Act.

43
44 Terrace Seed Mixes (Sun and Shade): Seed for terrace seed mixes shall be clean, latest crop seed of the varieties
45 required, labeled in accordance with U.S. Department of Agriculture Rules and Regulations under the Federal Seed
46 Act in effect at the time of delivery of seed. Seed shall be properly mixed. The seed shall be delivered in sealed con-
47 tainers to which is affixed a statement of guaranteed analysis for each seed variety furnished. Seed shall meet the
48 following requirements and shall be subject to test at the expense of the owner by the State Seed Laboratory of the
49 Wisconsin State Department of Agriculture.

SUN TERRACE MIX			
Formulation	Variety	% Purity	% Germination
30%	Dawson Red Fescue	95	85
30%	Puccinella Distans	99	85
30%	Geronimo Kentucky Bluegrass	95	85
10%	SR 4000 Perennial Rye Grass	98	90

SHADE TERRACE MIX			
Formulation	Variety	% Purity	% Germination
60%	Creeping Red Fescue	95	85
30%	Glade Kentucky Bluegrass	99	85
10%	SR 4000 Perennial Rye Grass	98	90

FERTILIZERS

Fertilizers, intended for use in connection with seeding, sodding or other planting, shall be standard commercial products conforming to the requirements of the Wisconsin Statutes.

Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:

Composition: Not less than 10% of actual nitrogen, not less than 10% phosphoric acid and not less than 10% potash by weight.

MULCHES

Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

SOIL STABILIZERS

Soil stabilizers are intended as soil bonding agents to prevent or minimize erosion. They must be environmentally benign; harmless to fish, wildlife, and plants; along with being non-toxic and non-combustible at the rate of application specified by the manufacturer. Asphalt based products will not be approved for use. Only products approved for field testing, and field tested by Wisconsin Department of Transportation will be approved for use.

Soil stabilizers are considered a short term duration (6 months) erosion control device for use on slopes 3:1 or flatter. In addition to the above requirements soil stabilizers must meet the same vegetative density and sediment loss standards as required for erosion mats.

Erosion Matting, Class I Urban Type A on all seeded disturbed areas

The Class and Type requirements match those of the Wisconsin Department of Transportation Product Acceptability List (PAL) nomenclature. Products listed in the PAL as Class I Urban Type A are all 100 percent biodegradable, and therefore do not need to be designated ORGANIC.

Work under this bid item shall be as set forth in the latest edition of the Standard Specifications, except the Contractor shall note that special care with anchorage devices shall be required so as to not injure park users. Anchorage devices for the mat are required to be a product identified on the Wisconsin Department of Transportation Erosion Control Product Acceptability List (PAL) under the category of "Anchoring Devices for Class I, Urban Erosion Mat."

Anchorage devices shall be completely biodegradable. Photobiodegradable or metal anchorage devices shall not be allowed. Materials deemed to present a hazard from splintering or spearing shall not be approved, including solid wood devices.

PART 3 - EXECUTION

EXAMINATION

Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.

Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.

Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.

Uniformly moisten excessively dry soil that is not workable or which is dusty.

Proceed with installation only after unsatisfactory conditions have been corrected.

If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Architect and replace with new planting soil.

PREPARATION

Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.

Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

SEEDING

The Park Division Construction Supervisor shall be called to inspect and approve the finish grade prior to seeding and mulching. Contact Rich Bergman at 608-266-6289 to arrange an inspection date.

The contractor shall repair all damaged or eroded areas as necessary and reseed during the required maintenance period.

Seeding shall be limited to May 1 to June 30th and after October 15th to snow cover. Seeding beyond October 15th shall be at the discretion of the City Engineer and shall include an addition to the seed mix of a companion crop as directed by the engineer. Any seeding outside the dates listed shall be at the risk of the contractor.

Sow seed with spreader or seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph (8 km/h).

Evenly distribute seed by sowing equal quantities in two directions at right angles to each other.

Do not use wet seed or seed that is moldy or otherwise damaged.

Do not seed against existing trees. Limit extent of seed to outside edge of planting saucer.

Sow seed at a total rate of 7.64 pounds per acre

Rake seed lightly into top 1/8 inch (3 mm) of soil, roll lightly, and water with fine spray.

FERTILIZING

Fertilizer shall be applied at the rate of seventeen (17) pounds per 1,000 square feet of area for areas seeded with terrace seed mix, unless otherwise specified in the contract. Those areas which are specified for temporary seeding shall have fertilizer applied at the rate of ten (10) pounds per 1,000 square feet of area unless otherwise specified in the contract. No fertilizer shall be applied with native plant seedings.

1 The fertilizer for the seeding areas shall be uniformly spread thereon and incorporated into the soil by light discing
2 and harrowing. The fertilizer shall be pulverized and free from lumps when applied.

3 In the event fertilizer is incorporated with topsoiled areas, the fertilizer may be applied just prior to and in conjunc-
4 tion with the final discing or harrowing operations of the topsoil, or in the event the topsoil is manipulated by hand,
5 just prior to the final raking and leveling.

6
7 In the event fertilizer is to be placed on surfaces on which no topsoil is placed, the soil shall be
8 prepared by discing or harrowing to a depth of three (3) to four (4) inches and the fertilizer then incorporated as set
9 forth above.

10
11 In the event fertilizer is to be placed on seeding areas where the seed is to be sown by means of a spray or stream of
12 water under pressure, the required amount of fertilizer may be placed in the tank, mixed together with the water and
13 the seed, applied in the seeding operation. Fertilizer applied by this method will not require discing and harrowing
14 after being placed.

15 **MULCHING**

16 Mulch shall be placed on those areas which are specified for permanent seeding within three (3) days
17 after the seeding has been completed unless the area is specified to receive erosion matting. Mulch is not required in
18 areas to receive erosion matting provided matting is placed within three (3) days of seeding.

19
20
21 Mulching operations shall not be performed during periods of excessively high winds which would preclude the
22 proper placing of the mulch.

23
24 The placed mulch shall be loose enough to allow some sunlight to penetrate and air to slowly circulate but thick
25 enough to shade the ground, conserve soil moisture and prevent or reduce erosion.

26
27 The Contractor shall maintain the mulched areas and shall repair any areas damaged by wind, erosion, traffic, fire,
28 or other causes prior to final or partial acceptance of work under the contract.

29
30 The Contractor shall perform the work with either Method A or Method B, at the direction of the City Engineer.

31
32 Method A. The mulching material shall be uniformly spread over the designated areas to a
33 loose depth of one (1) to two (2) inches, using seventy (70) to ninety (90) pounds of mulch per 1,000
34 square feet. The mulch material from compacted bales shall be well loosened or made fluffy before being
35 spread in place. Unless otherwise directed, mulching operations shall begin at the top of the slopes and pro-
36 ceed downward.

37
38 The mulch cover, except when composed of wood excelsior fiber, shall be securely anchored in place by
39 means of heavy twine fastened by pegs or staples to form a grid of from six (6) to ten (10) feet spacing.

40
41 Method B. Straw or hay shall be treated with asphalt material blown from a machine, and
42 uniformly deposited over designated areas in one operation.

43
44 The mulch shall be placed uniformly over the area to a loose depth of one (1) to two (2) inches, using one
45 and one-half to two tons of mulch per acre and 75 to 100 gallons of emulsified asphalt per ton of straw or
46 hay. Within the above designated limits, the Engineer will determine, on the job, the rate of application of
47 the mulch and the asphalt, and the right is reserved for the Engineer to vary the rates during mulching oper-
48 ations to produce the desired results.

49
50 The machine for placing the mulch shall be of an approved type, which will blow or eject by constant air
51 stream a controlled amount of mulch and which will introduce into the air stream a spray of asphalt to par-
52 tially coat the straw or hay, producing a spotty tack sufficient to hold together and retain in place the depos-
53 ited straw or hay.

54
55 Wood fiber shall be applied in the same manner as straw or hay except that the wood excelsior fiber
56 shall not be treated with asphalt material.

1 Throughout the process, the mulch material shall be fed into the blowing machine to produce a constant and uniform
2 ejection from the discharge spout, operated in a position to produce a mulch of uniform depth and coverage.
3

4 The mulch material shall not contain moisture in excess of that which will permit uniform feeding through the ma-
5 chine.
6

7 **SOIL STABILIZERS**

8 Soil stabilizers shall be used on all areas seeded
9

10 Erosion Matting, Class I Urban Type A shall be installed correctly with correct anchorage, staple pattern, and over-
11 lap. To verify the staple pattern, the Contractor shall provide to the Engineer a manufacturer's recommended staple
12 pattern for the type of matting installed.
13

14 Trimming of the Erosion Matting, Class I Urban Type A required to accommodate existing tree locations shall be
15 considered incidental to this bid item.
16

17 **TURF RENOVATION**

18 Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of ve-
19 hicles.
20

21 Reestablish turf where settlement or washouts occur or where minor regrading is required.
22

23 Install new planting soil as required.
24

25 Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
26

27 Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction
28 materials resulting from Contractor's operations, and replace with new planting soil.
29

30 Mow, dethatch, core aerate, and rake existing turf.
31

32 Remove weeds before seeding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-
33 emergence herbicides.
34

35 Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of
36 them off Owner's property.
37

38 Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches (150 mm).
39

40 Apply initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches (100 mm) of existing
41 soil. Install new planting soil to fill low spots and meet finish grades.
42

43 Initial Fertilizer: Commercial fertilizer applied according to manufacturer's recommendations.
44

45 Apply seed and protect with straw mulch as required for new turf.
46

47 Water newly planted areas and keep moist until new turf is established.
48

49 **TURF MAINTENANCE**

50 General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and perform-
51 ing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and
52 re-mulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the origi-
53 nal installation.
54

55 Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials
56 and turf damaged or lost in areas of subsidence.

1 In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as
2 required to prevent displacement.

3
4 Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated
5 pest management practices whenever possible to minimize the use of pesticides and reduce hazards.

6
7 Watering: all seeded areas shall be watered as necessary to meet germination and seed growth as defined in the Wis-
8 consin Statutes.

9
10 Water turf with fine spray at a minimum rate of 1 inch (25 mm) per week unless rainfall precipitation is ad-
11 equate.

12
13 Mow turf as soon as top growth is tall enough to cut. Repeat mowing to maintain height without cutting more than
14 one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do
15 not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial
16 and subsequent mowings to maintain the following grass height:

17
18 Turf Post-fertilization: Apply commercial fertilizer after initial mowing and when grass is dry.
19 Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. (0.45 kg/92.9 sq. m) to turf area.

20 21 **SATISFACTORY TURF**

22 Upon completion of seeding, the Contractor shall request approval from the Engineer for acceptance
23 of seeded areas for the purposes of issuing the certificate of completion and removal of erosion control devices (in-
24 cluding but not limited to inlet protection, silt sock and/or silt fence, turbidity barrier and/or silt curtain). If the cer-
25 tificate of completion is authorized by the Engineer with pending or without acceptance of seeded areas, the Con-
26 tractor is responsible for maintaining erosion control devices until authorized by the Engineer.

27
28 Acceptance shall be defined as healthy and flourishing germination of 95% of perennial grass seed to
29 a minimum height of 1 inch, with no or few bare patches.

30
31 All seeded areas which are dead or found not to be in a normal, healthy condition or do not conform to the specifica-
32 tions, in the judgment of the Engineer will not be accepted. All rejected work shall be replaced by the Contractor,
33 including removal and repair of all work affected by the replacement, at no cost to the City.

34 35 **CLEANUP AND PROTECTION**

36 Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site
37 to avoid tracking soil onto roads, walks, or other paved areas.

38
39 Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dis-
40 pose of them off Owner's property.

41 Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic.

42 Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.

43
44 Remove nondegradable erosion-control measures after grass establishment period.

45
46
47 **END OF SECTION**
48 **32 92 00**

SECTION E: BIDDERS ACKNOWLEDGEMENT

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

Bidder must state a Unit Price and Total Bid for each item. The Total Bid for each item must be the product of quantity, by Unit Price. The Grand Total must be the sum of the Total Bids for the various items. In case of multiplication errors or addition errors, the Grand Total with corrected multiplication and/or addition shall determine the Grand Total bid for each contract. The Unit Price and Total Bid must be entered numerically in the spaces provided. All words and numbers shall be written in ink.

1. The undersigned having familiarized himself/herself with the Contract documents, including Advertisement for Bids, Instructions to Bidders, Form of Proposal, City of Madison Standard Specifications for Public Works Construction - 2016 Edition thereto, Form of Agreement, Form of Bond, and Addenda issued and attached to the plans and specifications on file in the office of the City Engineer, hereby proposes to provide and furnish all the labor, materials, tools, and expendable equipment necessary to perform and complete in a workmanlike manner the specified construction on this project for the City of Madison; all in accordance with the plans and specifications as prepared by the City Engineer, including Addenda to the Contract Nos. _____ through _____ issued thereto, at the prices for said work as contained in this proposal. (Electronic bids submittals shall acknowledge addendum under Section E and shall not acknowledge here)
2. If awarded the Contract, we will initiate action within seven (7) days after notification or in accordance with the date specified in the contract to begin work and will proceed with diligence to bring the project to full completion within the number of work days allowed in the Contract or by the calendar date stated in the Contract.
3. The undersigned Bidder or Contractor certifies that he/she is not a party to any contract, combination in form of trust or otherwise, or conspiracy in restraint of trade or commerce or any other violation of the anti-trust laws of the State of Wisconsin or of the United States, with respect to this bid or contract or otherwise.
4. I hereby certify that I have met the Bid Bond Requirements as specified in Section 102.5. *(IF BID BOND IS USED, IT SHALL BE SUBMITTED ON THE FORMS PROVIDED BY THE CITY. FAILURE TO DO SO MAY RESULT IN REJECTION OF THE BID).*
5. I hereby certify that all statements herein are made on behalf of _____ (name of corporation, partnership, or person submitting bid) a corporation organized and existing under the laws of the State of _____ a partnership consisting of _____; an individual trading as _____; of the City of _____ State of _____; that I have examined and carefully prepared this Proposal, from the plans and specifications and have checked the same in detail before submitting this Proposal; that I have fully authority to make such statements and submit this Proposal in (its, their) behalf; and that the said statements are true and correct.

SIGNATURE

TITLE, IF ANY

Sworn and subscribed to before me this _____ day of _____, 20_____.

(Notary Public or other officer authorized to administer oaths)
My Commission Expires _____

Bidders shall not add any conditions or qualifying statements to this Proposal.

SECTION F: DISCLOSURE OF OWNERSHIP & BEST VALUE CONTRACTING

FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS CONTRACT NO. 7391

State of Wisconsin
Department of Workforce Development
Equal Rights Division
Labor Standards Bureau

Disclosure of Ownership

<p>Notice required under Section 15.04(1)(m), Wisconsin Statutes. The statutory authority for the use of this form is prescribed in Sections 66.0903(12)(d) and 103.49(7)(d), Wisconsin Statutes. The use of this form is mandatory. The penalty for failing to complete this form is prescribed in Section 103.005(12), Wisconsin Statutes. Personal information you provide may be used for secondary purposes.</p>			
<p>(1) On the date a contractor submits a bid to or completes negotiations with a state agency or local governmental unit, on a project subject to Section 66.0903 or 103.49, Wisconsin Statutes, the contractor shall disclose to such state agency or local governmental unit the name of any "other construction business", which the contractor, or a shareholder, officer or partner of the contractor, owns or has owned within the preceding three (3) years.</p> <p>(2) The term "other construction business" means any business engaged in the erection, construction, remodeling, repairing, demolition, altering or painting and decorating of buildings, structures or facilities. It also means any business engaged in supplying mineral aggregate, or hauling excavated material or spoil as provided by Sections 66.0903(3), 103.49(2) and 103.50(2), Wisconsin Statutes.</p> <p>(3) This form must ONLY be filed, with the state agency or local governmental unit that will be awarding the contract, if both (A) and (B) are met.</p> <p>(A) The contractor, or a shareholder, officer or partner of the contractor:</p> <p style="margin-left: 20px;">(1) Owns at least a 25% interest in the "other construction business", indicated below, on the date the contractor submits a bid or completes negotiations.</p> <p style="margin-left: 20px;">(2) Or has owned at least a 25% interest in the "other construction business" at any time within the preceding three (3) years.</p> <p>(B) The Wisconsin Department of Workforce Development (DWD) has determined that the "other construction business" has failed to pay the prevailing wage rate or time and one-half the required hourly basic rate of pay, for hours worked in excess of the prevailing hours of labor, to any employee at any time within the preceding three (3) years.</p>			
Other Construction Business			
Not Applicable <input type="checkbox"/>			
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
Name of Business			
Street Address or P O Box	City	State	Zip Code
<p>I hereby state under penalty of perjury that the information, contained in this document, is true and accurate according to my knowledge and belief.</p>			
Print the Name of Authorized Officer			
Signature of Authorized Officer		Date Signed	
Name of Corporation, Partnership or Sole Proprietorship			
Street Address or P O Box	City	State	Zip Code

If you have any questions call (608) 266-0028

ERD-7777-E (R. 09/2003)

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

Best Value Contracting

1. The Contractor shall indicate the non-apprenticeable trades used on this contract.

2. Madison General Ordinance (M.G.O.), 33.07(7), does provide for some exemptions from the active apprentice requirement. Apprenticeable trades are those trades considered apprenticeable by the State of Wisconsin. Please check applicable box if you are seeking an exemption.

- Contractor has a total skilled workforce of four or less individuals in all apprenticeable trades combined.
- No available trade training program; The Contractor has been rejected by the only available trade training program, or there is no trade training program within 90 miles.
- Contractor is not using an apprentice due to having a journey worker on layoff status, provided the journey worker was employed by the contractor in the past six months.
- First-time Contractor on City of Madison Public Works contract requests a onetime exemption but intends to comply on all future contracts and is taking steps typical of a "good faith" effort.
- Contractor has been in business less than one year.
- Contractor doesn't have enough journeyman trade workers to qualify for a trade training program in that respective trade.
- An exemption is granted in accordance with a time period of a "Documented Depression" as defined by the State of Wisconsin.

3. The Contractor shall indicate on the following section which apprenticeable trades are to be used on this contract. Compliance with active apprenticeship, to the extent required by M.G.O. 33.07(7), shall be satisfied by documentation from an applicable trade training body; an apprenticeship contract with the Wisconsin Department of Workforce Development or a similar agency in another state; or the U.S Department of Labor. This documentation is required prior to the Contractor beginning work on the project site.

- The Contractor has reviewed the list and shall not use any apprenticeable trades on this project.

LIST APPRENTICABLE TRADES (check all that apply to your work to be performed on this contract)

- BRICKLAYER
- CARPENTER
- CEMENT MASON / CONCRETE FINISHER
- CEMENT MASON (HEAVY HIGHWAY)
- CONSTRUCTION CRAFT LABORER
- DATA COMMUNICATION INSTALLER
- ELECTRICIAN
- ENVIRONMENTAL SYSTEMS TECHNICIAN / HVAC SERVICE TECH/HVAC INSTALL / SERVICE
- GLAZIER
- HEAVY EQUIPMENT OPERATOR / OPERATING ENGINEER
- INSULATION WORKER (HEAT & FROST)
- IRON WORKER
- IRON WORKER (ASSEMBLER, METAL BLDGS)
- PAINTER & DECORATOR
- PLASTERER
- PLUMBER
- RESIDENTIAL ELECTRICIAN
- ROOFER & WATER PROOFER
- SHEET METAL WORKER
- SPRINKLER FITTER
- STEAMFITTER
- STEAMFITTER (REFRIGERATION)
- STEAMFITTER (SERVICE)
- TAPER & FINISHER
- TELECOMMUNICATIONS (VOICE, DATA & VIDEO) INSTALLER-TECHNICIAN
- TILE SETTER

SECTION G: BID BOND

KNOW ALL MEN BY THESE PRESENT, THAT Principal and Surety, as identified below, are held and firmly bound unto the City of Madison, (hereinafter referred to as the "Obligee"), in the sum of five per cent (5%) of the amount of the total bid or bids of the Principal herein accepted by the Obligee, for the payment of which the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

The conditions of this obligation are such that, whereas the Principal has submitted, to the City of Madison a certain bid, including the related alternate, and substitute bids attached hereto and hereby made a part hereof, to enter into a contract in writing for the construction of:

FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS CONTRACT NO. 7391

1. If said bid is rejected by the Obligee, then this obligation shall be void.
2. If said bid is accepted by the Obligee and the Principal shall execute and deliver a contract in the form specified by the Obligee (properly completed in accordance with said bid) and shall furnish a bond for his/her faithful performance of said contract, and for the payment of all persons performing labor or furnishing materials in connection therewith, and shall in all other respects perform the agreement created by the acceptance of said bid, then this obligation shall be void.

If said bid is accepted by the Obligee and the Principal shall fail to execute and deliver the contract and the performance and payment bond noted in 2. above executed by this Surety, or other Surety approved by the City of Madison, all within the time specified or any extension thereof, the Principal and Surety agree jointly and severally to forfeit to the Obligee as liquidated damages the sum mentioned above, it being understood that the liability of the Surety for any and all claims hereunder shall in no event exceed the sum of this obligation as stated, and it is further understood that the Principal and Surety reserve the right to recover from the Obligee that portion of the forfeited sum which exceed the actual liquidated damages incurred by the Obligee.

The Surety, for value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no way impaired or affected by an extension of the time within which the Obligee may accept such bid, and said Surety does hereby waive notice of any such extension.

IN WITNESS WHEREOF, the Principal and the Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year set forth below.

Seal PRINCIPAL

Name of Principal

By

Date

Name and Title

Seal SURETY

Name of Surety

By

Date

Name and Title

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under National Provider No. _____ for the year _____, and appointed as attorney in fact with authority to execute this bid bond and the payment and performance bond referred to above, which power of attorney has not been revoked.

Date

Agent

Address

City, State and Zip Code

Telephone Number

NOTE TO SURETY & PRINCIPAL

The bid submitted which this bond guarantees shall be rejected if the following instrument is not attached to this bond:

Power of Attorney showing that the agent of Surety is currently authorized to execute bonds on behalf of the Surety, and in the amounts referenced above.

Certificate of Biennial Bid Bond

TIME PERIOD - VALID (FROM/TO)
NAME OF SURETY
NAME OF CONTRACTOR
CERTIFICATE HOLDER <p style="text-align: center;">City of Madison, Wisconsin</p>

This is to certify that a biennial bid bond issued by the above-named Surety is currently on file with the City of Madison.

This certificate is issued as a matter of information and conveys no rights upon the certificate holder and does not amend, extend or alter the coverage of the biennial bid bond.

Cancellation: Should the above policy be cancelled before the expiration date, the issuing Surety will give thirty (30) days written notice to the certificate holder indicated above.

Signature of Authorized Contractor Representative

Date

SECTION H: AGREEMENT

THIS AGREEMENT made this _____ day of _____ in the year Two Thousand and Sixteen between _____ hereinafter called the Contractor, and the City of Madison, Wisconsin, hereinafter called the City.

WHEREAS, the Common Council of the said City of Madison under the provisions of a resolution adopted _____, and by virtue of authority vested in the said Council, has awarded to the Contractor the work of performing certain construction.

NOW, THEREFORE, the Contractor and the City, for the consideration hereinafter named, agree as follows:

1. **Scope of Work.** The Contractor shall, perform the construction, execution and completion of the following listed complete work or improvement in full compliance with the Plans, Specifications, Standard Specifications, Supplemental Specifications, Special Provisions and contract; perform all items of work covered or stipulated in the proposal; perform all altered or extra work; and shall furnish, unless otherwise provided in the contract, all materials, implements, machinery, equipment, tools, supplies, transportation, and labor necessary to the prosecution and completion of the work or improvements:

FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS CONTRACT NO. 7391

2. **Completion Date/Contract Time.** Construction work must begin within seven (7) calendar days after the date appearing on mailed written notice to do so shall have been sent to the Contractor and shall be carried on at a rate so as to secure full completion SEE SPECIAL PROVISIONS, the rate of progress and the time of completion being essential conditions of this Agreement.
3. **Contract Price.** The City shall pay to the Contractor at the times, in the manner and on the conditions set forth in said specifications, the sum of _____ (\$ _____) Dollars being the amount bid by such Contractor and which was awarded to him/her as provided by law.
4. **Wage Rates for Employees of Public Works Contractors**

General and Authorization. The Contractor shall compensate its employees at the prevailing wage rate in accordance with section 66.0903, Wis. Stats., DWD 290 of the Wisconsin Administrative Code and as hereinafter provided unless otherwise noted in Section D: Special Provisions, Subsection 102.10 – Minimum Rate of Wage Scale.

“Public Works” shall include building or work involving the erection, construction, remodeling, repairing or demolition of buildings, parking lots, highways, streets, bridges, sidewalks, street lighting, traffic signals, sanitary sewers, water mains and appurtenances, storm sewers, and the grading and landscaping of public lands.

“Building or work” includes construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work, except for the delivery of mineral aggregate such as sand, gravel, bituminous asphaltic concrete or stone which is incorporated into the work under contract with the City by depositing the material directly in final place from transporting vehicle.

“Erection, construction, remodeling, repairing” means all types of work done on a particular building or work at the site thereof in the construction or development of the project, including without limitation, erecting, construction, remodeling, repairing, altering, painting, and decorating, the transporting of materials and supplies to or from the building or work done by the employees of the Contractor, Subcontractor, or Agent thereof, and the manufacturing or furnishing of

materials, articles, supplies or equipment on the site of the building or work, by persons employed by the Contractor, Subcontractor, or Agent thereof.

"Employees working on the project" means laborers, workers, and mechanics employed directly upon the site of work.

"Laborers, Workers, and Mechanics" include pre-apprentices, helpers, trainees, learners and properly registered and indentured apprentices but exclude clerical, supervisory, and other personnel not performing manual labor.

Establishment of Wage Rates. The Department of Public Works shall periodically obtain a current schedule of prevailing wage rates from DWD. The schedule shall be used to establish the City of Madison Prevailing Wage Rate Schedule for Public Works Construction (prevailing wage rate). The Department of Public Works may include known increases to the prevailing wage rate which can be documented and are to occur on a future specific date. The prevailing wage rate shall be included in public works contracts subsequently negotiated or solicited by the City. Except for known increases contained within the schedule, the prevailing wage rate shall not change during the contract. The approved wage rate is attached hereto.

Workforce Profile. The Contractor shall, at the time of signature of the contract, notify the City Engineer in writing of the names and classifications of all the employees of the Contractor, Subcontractors, and Agents proposed for the work. In the alternative, the Contractor shall submit in writing the classifications of all the employees of the Contractor, Subcontractors and Agents and the total number of hours estimated in each classification for the work. This workforce profile(s) shall be reviewed by the City Engineer who may, within ten (10) days, object to the workforce profile(s) as not being reflective of that which would be required for the work. The Contractor may request that the workforce profile, or a portion of the workforce profile, be submitted after the signature of the contract but at least ten (10) days prior to the work commencing. Any costs or time loss resulting from modifications to the workforce profile as a result of the City Engineer's objections shall be the responsibility of the Contractor.

Payrolls and Records. The Contractor shall keep weekly payroll records setting forth the name, address, telephone number, classification, wage rate and fringe benefit package of all the employees who work on the contract, including the employees of the Contractor's subcontractors and agents. Such weekly payroll records must include the required information for all City contracts and all other contracts on which the employee worked during the week in which the employee worked on the contract. The Contractor shall also keep records of the individual time each employee worked on the project and for each day of the project. Such records shall also set forth the total number of hours of overtime credited to each such employee for each day and week and the amount of overtime pay received in that week. The records shall set forth the full weekly wages earned by each employee and the actual hourly wage paid to the employee.

The Contractor shall submit the weekly payroll records, including the records of the Contractor's subcontractors and agents, to the City Engineer for every week that work is being done on the contract. The submittal shall be within twenty-one (21) calendar days of the end of the Contractor's weekly pay period.

Employees shall receive the full amounts accrued at the time of the payment, computed at rates not less than those stated in the prevailing wage rate and each employee's rate shall be determined by the work that is done within the trade or occupation classification which should be properly assigned to the employee.

An employee's classification shall not be changed to a classification of a lesser rate during the contract. If, during the term of the contract, an employee works in a higher pay classification than the one which was previously properly assigned to the employee, then that employee shall be considered to be in the higher pay classification for the balance of the contract, receive the appropriate higher rate of pay, and she/he shall not receive a lesser rate during the balance of the

contract. For purposes of clarification, it is noted that there is a distinct difference between working in a different classification with higher pay and doing work within a classification that has varying rates of pay which are determined by the type of work that is done within the classification. For example, the classification "Operating Engineer" provides for different rates of pay for various classes of work and the Employer shall compensate an employee classified as an "Operating Engineer" based on the highest class of work that is done in one day. Therefore, an "Operating Engineer's" rate may vary on a day to day basis depending on the type of work that is done, but it will never be less than the base rate of an "Operating Engineer". Also, as a matter of clarification, it is recognized that an employee may work in a higher paying classification merely by chance and without prior intention, calculation or design. If such is the case and the performance of the work is truly incidental and the occurrence is infrequent, inconsequential and does not serve to undermine the single classification principle herein, then it may not be required that the employee be considered to be in the higher pay classification and receive the higher rate of pay for the duration of the contract. However, the Contractor is not precluded or prevented from paying the higher rate for the limited time that an employee performs work that is outside of the employee's proper classification.

Questions regarding an employee's classification, rate of pay or rate of pay within a classification, shall be resolved by reference to the established practice that predominates in the industry and on which the trade or occupation rate/classification is based. Rate of pay and classification disputes shall be resolved by relying upon practices established by collective bargaining agreements and guidelines used in such determination by appropriate recognized trade unions operating within the City of Madison.

The Contractor, its Subcontractors and Agents shall submit to interrogation regarding compliance with the provisions of this ordinance.

Mulcting of the employees by the Contractor, Subcontractor, and Agents on Public Works contracts, such as by kickbacks or other devices, is prohibited. The normal rate of wage of the employees of the Contractor, Subcontractor, and Agents shall not be reduced or otherwise diminished as a result of payment of the prevailing wage rate on a public works contract.

Hourly contributions. Hourly contributions shall be determined in accordance with the prevailing wage rate and with DWD. 290.01(10), Wis. Admin. Code.

Apprentices and Subjourney persons. Apprentices and sub journeypersons performing work on the project shall be compensated in accordance with the prevailing wage rate and with DWD 290.02, and 290.025, respectively, Wis. Admin. Code.

Straight Time Wages. The Contractor may pay straight time wages as determined by the prevailing wage rate and DWD 290.04, Wis. Admin. Code.

Overtime Wages. The Contractor shall pay overtime wages as required by the prevailing wage rate and DWD 290.05, Wis. Admin. Code.

Posting of Wage Rates and Hours. A clearly legible copy of the prevailing wage rate, together with the provisions of Sec. 66.0903(10)(a) and (11)(a), Wis. Stats., shall be kept posted in at least one conspicuous and easily accessible place at the project site by the Contractor and such notice shall remain posted during the full time any laborers, workers or mechanics are employed on the contract.

Evidence of Compliance by Contractor. Upon completion of the contract, the Contractor shall file with the Department of Public Works an affidavit stating:

- a. That the Contractor has complied fully with the provisions and requirements of Sec. 66.0903(3), Wis. Stats., and Chapter DWD 290, Wis. Admin. Code; the Contractor has received evidence of compliance from each of the agents and subcontractors; and the

names and addresses of all of the subcontractors and agents who worked on the contract.

- b. That full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefore; where these records will be kept and the name, address and telephone number of the person who will be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Evidence of Compliance by Agent and Subcontractor. Each agent and subcontractor shall file with the Contractor, upon completion of their portion of the work on the contract an affidavit stating that all the provisions of Sec. 66.0903(3), Wis. Stats., have been fully complied with and that full and accurate records have been kept, which clearly indicate the name and trade or occupation of every laborer, worker or mechanic employed by the Contractor in connection with work on the project. The records shall show the number of hours worked by each employee and the actual wages paid therefore; where these records shall be kept and the name, address and telephone number of the person who shall be responsible for keeping them. The records shall be retained and made available for a period of at least three (3) years following the completion of the project of public works and shall not be removed without prior notification to the municipality.

Failure to Comply with the Prevailing Wage Rate. If the Contractor fails to comply with the prevailing wage rate, she/he shall be in default on the contract. In addition, if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.

Establishment of Wage Rates. The Department of Public Works shall periodically obtain a current schedule of prevailing wage rates from DWD. The schedule shall be used to establish the City of Madison Prevailing Wage Rate Schedule for Public Works Construction (prevailing wage rate). The Department of Public Works may include known increases to the prevailing wage rate which can be documented and are to occur on a future specific date. The prevailing wage rate shall be included in public works contracts subsequently negotiated or solicited by the City. Except for known increases contained within the schedule, the prevailing wage rate shall not change during the contract. The approved wage rate and DWD prevailing wage requirements are attached hereto as Sec. I of the contract.

5. **Affirmative Action.** In the performance of the services under this Agreement the Contractor agrees not to discriminate against any employee or applicant because of race, religion, marital status, age, color, sex, disability, national origin or ancestry, income level or source of income, arrest record or conviction record, less than honorable discharge, physical appearance, sexual orientation, gender identity, political beliefs, or student status. The Contractor further agrees not to discriminate against any subcontractor or person who offers to subcontract on this contract because of race, religion, color, age, disability, sex, sexual orientation, gender identity or national origin.

The Contractor agrees that within thirty (30) days after the effective date of this agreement, the Contractor will provide to the City Affirmative Action Division certain workforce utilization statistics, using a form to be furnished by the City.

If the contract is still in effect, or if the City enters into a new agreement with the Contractor, within one year after the date on which the form was required to be provided, the Contractor will provide updated workforce information using a second form, also to be furnished by the City. The second form will be submitted to the City Affirmative Action Division no later than one year after the date on which the first form was required to be provided.

The Contractor further agrees that, for at least twelve (12) months after the effective date of this contract, it will notify the City Affirmative Action Division of each of its job openings at facilities in Dane County for which applicants not already employees of the Contractor are to be considered. The notice will include a job description, classification, qualifications and application procedures and deadlines. The Contractor agrees to interview and consider candidates referred by the Affirmative Action Division if the candidate meets the minimum qualification standards established by the Contractor, and if the referral is timely. A referral is timely if it is received by the Contractor on or before the date started in the notice.

Articles of Agreement

Article I

The Contractor shall take affirmative action in accordance with the provisions of this contract to insure that applicants are employed, and that employees are treated during employment without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin and that the employer shall provide harassment free work environment for the realization of the potential of each employee. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training including apprenticeship insofar as it is within the control of the Contractor. The Contractor agrees to post in conspicuous places available to employees and applicants notices to be provided by the City setting out the provisions of the nondiscrimination clauses in this contract.

Article II

The Contractor shall in all solicitations or advertisements for employees placed by or on behalf of the Contractors state that all qualified or qualifiable applicants will be employed without regard to race, religion, color, age, marital status, disability, sex, sexual orientation, gender identity or national origin.

Article III

The Contractor shall send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding a notice to be provided by the City advising the labor union or worker's representative of the Contractor's equal employment opportunity and affirmative action commitments. Such notices shall be posted in conspicuous places available to employees and applicants for employment.

Article V

The Contractor agrees that it will comply with all provisions of the Affirmative Action Ordinance of the City of Madison, including the contract compliance requirements. The Contractor agrees to submit the model affirmative action plan for public works contractors in a form approved by the Affirmative Action Division Manager.

Article VI

The Contractor will maintain records as required by Section 39.02(9)(f) of the Madison General Ordinances and will provide the City Affirmative Action Division with access to such records and to persons who have relevant and necessary information, as provided in Section 39.02(9)(f). The City agrees to keep all such records confidential, except to the extent that public inspection is required by law.

Article VII

In the event of the Contractor's or subcontractor's failure to comply with the Equal Employment Opportunity and Affirmative Action Provisions of this contract or Section 39.03 and 39.02 of the Madison General Ordinances, it is agreed that the City at its option may do any or all of the following:

1. Cancel, terminate or suspend this Contract in whole or in part.
2. Declare the Contractor ineligible for further City contracts until the Affirmative Action requirements are met.
3. Recover on behalf of the City from the prime Contractor 0.5 percent of the contract award price for each week that such party fails or refuses to comply, in the nature of liquidated damages, but not to exceed a total of five percent (5%) of the contract price, or five thousand dollars (\$5,000), whichever is less. Under public works contracts, if a subcontractor is in noncompliance, the City may recover liquidated damages from the prime Contractor in the manner described above. The preceding sentence shall not be construed to prohibit a prime Contractor from recovering the amount of such damage from the non-complying subcontractor.

Article VIII

The Contractor shall include the above provisions of this contract in every subcontract so that such provisions will be binding upon each subcontractor. The Contractor shall take such action with respect to any subcontractor as necessary to enforce such provisions, including sanctions provided for noncompliance.

Article IX

The Contractor shall allow the maximum feasible opportunity to small business enterprises to compete for any subcontracts entered into pursuant to this contract. (In federally funded contracts the terms "DBE, MBE and WBE" shall be substituted for the term "small business" in this Article.)

6. Substance Abuse Prevention Program Required. Prior to commencing work on the Contract, the Contractor, and any Subcontractor, shall have in place a written program for the prevention of substance abuse among its employees as required under Wis. Stat. Sec. 103.503.
7. **Contractor Hiring Practices.**

Ban the Box - Arrest and Criminal Background Checks. (Sec. 39.08, MGO)

This provision applies to all prime contractors on contracts entered into on or after January 1, 2016, and all subcontractors who are required to meet prequalification requirements under MGO 33.07(7)(l), MGO as of the first time they seek or renew pre-qualification status on or after January 1, 2016. The City will monitor compliance of subcontractors through the pre-qualification process.

- a. **Definitions.** For purposes of this section, "Arrest and Conviction Record" includes, but is not limited to, information indicating that a person has been questioned, apprehended, taken into custody or detention, held for investigation, arrested, charged with, indicted or tried for any felony, misdemeanor or other offense pursuant to any law enforcement or military authority.

"Conviction record" includes, but is not limited to, information indicating that a person has been convicted of a felony, misdemeanor or other offense, placed on probation, fined, imprisoned or paroled pursuant to any law enforcement or military authority.

“Background Check” means the process of checking an applicant’s arrest and conviction record, through any means.

b. Requirements. For the duration of this Contract, the Contractor shall:

1. Remove from all job application forms any questions, check boxes, or other inquiries regarding an applicant’s arrest and conviction record, as defined herein.
2. Refrain from asking an applicant in any manner about their arrest or conviction record until after conditional offer of employment is made to the applicant in question.
3. Refrain from conducting a formal or informal background check or making any other inquiry using any privately or publicly available means of obtaining the arrest or conviction record of an applicant until after a conditional offer of employment is made to the applicant in question.
4. Make information about this ordinance available to applicants and existing employees, and post notices in prominent locations at the workplace with information about the ordinance and complaint procedure using language provided by the City.
5. Comply with all other provisions of Sec. 39.08, MGO.

c. Exemptions: This section shall not apply when:

1. Hiring for a position where certain convictions or violations are a bar to employment in that position under applicable law, or
2. Hiring a position for which information about criminal or arrest record, or a background check is required by law to be performed at a time or in a manner that would otherwise be prohibited by this ordinance, including a licensed trade or profession where the licensing authority explicitly authorizes or requires the inquiry in question.

To be exempt, Contractor has the burden of demonstrating that there is an applicable law or regulation that requires the hiring practice in question, if so, the contractor is exempt from all of the requirements of this ordinance for the position(s) in question.

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
CONTRACT NO. 7391**

IN WITNESS WHEREOF, the Contractor has hereunto set his/her hand and seal and the City has caused these presents to be sealed with its corporate seal and to be subscribed by its Mayor and City Clerk the day and year first above written.

Countersigned:

	Company Name
Witness	Date
Witness	Date
Witness	Date
Witness	Date

CITY OF MADISON, WISCONSIN

Provisions have been made to pay the liability that will accrue under this contract.

Approved as to form:

Finance Director	City Attorney
Signed this _____ day of _____, 20_____	
Witness	Date
Witness	Date
Witness	Date

SECTION I: PAYMENT AND PERFORMANCE BOND

KNOW ALL MEN BY THESE PRESENTS, that we _____
 as _____ principal, _____ and

Company of _____ as surety, are held and firmly bound unto the City of
 Madison, Wisconsin, in the sum of _____ (\$ _____) Dollars, lawful money of the
 United States, for the payment of which sum to the City of Madison, we hereby bind ourselves and our
 respective executors and administrators firmly by these presents.

The condition of this Bond is such that if the above bounden shall on his/her part fully and faithfully
 perform all of the terms of the Contract entered into between him/herself and the City of Madison for the
 construction of:

**FOREST HILL MAUSOLEUM BUILDING ENVELOPE REPAIRS
 CONTRACT NO. 7391**

in Madison, Wisconsin, and shall pay all claims for labor performed and material furnished in the
 prosecution of said work, and save the City harmless from all claims for damages because of negligence
 in the prosecution of said work, and shall save harmless the said City from all claims for compensation
 (under Chapter 102, Wisconsin Statutes) of employees and employees of subcontractor, then this Bond is
 to be void, otherwise of full force, virtue and effect.

Signed and sealed this _____ day of _____

Countersigned:

 Company Name (Principal)

 Witness

 President Seal

 Secretary

Approved as to form:

 Surety Seal

Salary Employee Commission

 City Attorney

By _____
 Attorney-in-Fact

This certifies that I have been duly licensed as an agent for the above company in Wisconsin under
 National Producer Number _____ for the year _____, and appointed as attorney-in-fact
 with authority to execute this payment and performance bond which power of attorney has not been
 revoked.

 Date

 Agent Signature

SECTION J: PREVAILING WAGE RATES

ISSUE DATE: 1/8/2016

PROJECT:

ALL PUBLIC WORKS PROJECTS UNDER SEC. 66.0903, STATS-CITY OF MADISON
MADISON CITY, DANE COUNTY, WI
Determination No. 201600001

PROJECT OWNER:

ROBERT F PHILLIPS, INTERIM CITY ENGINEER
CITY OF MADISON - ENGINEERING
210 M L KING JR BLVD, RM 115
MADISON, WI 537033342

REQUESTER:

ROBERT F PHILLIPS, INTERIM CITY ENGINEER
CITY OF MADISON - ENGINEERING
210 M L KING JR BLVD, RM 115
MADISON, WI 537033342

ADDITIONAL CONTACT:

NORMAN DAVIS, CONTRACT COMPLIANCE
CITY OF MADISON-DEPT OF CIVIL RTS-AA DIV
210 MARTIN L KING JR BLVD, RM 523
MADISON, WI 537033342

The department received an application for prevailing wage rate determination for the above-captioned project. The department conducted a survey to determine the prevailing wage rate for the trade(s) or occupation(s) needed to complete the project. The survey's findings appear in the attached project determination.

If you believe that the wage rate for any trade or occupation does not accurately reflect the prevailing wage rate in the city, village or town where the project is located, you may ask the department to conduct an administrative review of such wage rate. You must submit this request in writing within 30 days from the date indicated above. Additionally, your request must include wage rate information from at least three similar projects in the city, village or town where the proposed project is located and on which some work has been performed by the contested trade(s) during the current survey period and was previously considered by the department in issuing the attached determination. See DWD 290.10 of the Wisconsin Administrative Code and either s. 66.0903(3)(br), Stats., or s. 103.49(3)(c), Stats., for a complete explanation of the administrative review process.

Enclosures

It is hereby ordered that the prevailing wage rates set forth in the attached project determination shall only be applicable to the above referenced project. This order is a **FINAL ORDER** of the department unless a timely request for an administrative review is filed with the department.

ISSUED BY:

Equal Rights Division
Labor Standards Bureau
Construction Wage Standards Section
P.O. Box 8928, Madison, WI 53708-8928
(608)266-6861

Web Site: <http://dwd.wisconsin.gov/er/>

PREVAILING WAGE RATE DETERMINATION

Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 01/08/2016
Amended On: 01/28/2016

DETERMINATION NUMBER: 201600001

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2016. If NOT, You MUST Reapply.

PROJECT NAME: ALL PUBLIC WORKS PROJECTS UNDER SEC. 66.0903, STATS-CITY OF MADISON

PROJECT LOCATION: MADISON CITY, DANE COUNTY, WI

CONTRACTING AGENCY: CITY OF MADISON - ENGINEERING

CLASSIFICATION:	Contractors are responsible for correctly classifying their workers. Either call the Department of Workforce Development (DWD) with trade or classification questions or consult DWD's Dictionary of Occupational Classifications & Work Descriptions on the DWD website at: dwd.wisconsin.gov/er/prevailing_wage_rate/Dictionary/dictionary_main.htm .
OVERTIME:	<p>Time and one-half must be paid for all hours worked:</p> <ul style="list-style-type: none">- over 10 hours per day on prevailing wage projects- over 40 hours per calendar week- Saturday and Sunday- on all of the following holidays: January 1; the last Monday in May; July 4; the 1st Monday in September; the 4th Thursday in November; December 25;- The day before if January 1, July 4 or December 25 falls on a Saturday;- The day following if January 1, July 4 or December 25 falls on a Sunday. <p>Apply the time and one-half overtime calculation to whichever is higher between the Hourly Basic Rate listed on this project determination or the employee's regular hourly rate of pay. Add any applicable Premium or DOT Premium to the Hourly Basic Rate before calculating overtime.</p> <p>A DOT Premium (discussed below) may supersede this time and one-half requirement.</p>
FUTURE INCREASE:	When a specific trade or occupation requires a future increase, you MUST add the full hourly increase to the "TOTAL" on the effective date(s) indicated for the specific trade or occupation.
PREMIUM PAY:	If indicated for a specific trade or occupation, the full amount of such pay MUST be added to the "HOURLY BASIC RATE OF PAY" indicated for such trade or occupation, whenever such pay is applicable.
DOT PREMIUM:	This premium only applies to highway and bridge projects owned by the Wisconsin Department of Transportation and to the project type heading "Airport Pavement or State Highway Construction." DO NOT apply the premium calculation under any other project type on this determination.
APPRENTICES:	Pay apprentices a percentage of the applicable journey person's hourly basic rate of pay and hourly fringe benefit contributions specified in this determination. Obtain the appropriate percentage from each apprentice's contract or indenture.
SUBJOURNEY:	Subjourney wage rates may be available for some of the trades or occupations indicated below with the exception of laborers, truck drivers and heavy equipment operators. Any employer interested in using a subjourney classification on this project MUST complete Form ERD-10880 and request the applicable wage rate from the Department of Workforce Development PRIOR to using the subjourney worker on this project.

This document **MUST BE POSTED** by the **CONTRACTING AGENCY** in at least one conspicuous and easily accessible place **on the site of the project**. A local governmental unit may post this document at the place normally used to post public notices if there is no common site on the project. This document **MUST** remain posted during the entire time any worker is employed on the project and **MUST** be physically incorporated into the specifications and all contracts and subcontracts. If you have any questions, please write to the Equal Rights Division, Labor Standards Bureau, P.O. Box 8928, Madison, Wisconsin 53708 or call (608) 266-6861.

The following statutory provisions apply to local governmental unit projects of public works and are set forth below pursuant to the requirements of s. 66.0903(8), Stats.

s. 66.0903 (1) (f) & s. 103.49 (1) (c) "PREVAILING HOURS OF LABOR" for any trade or occupation in any area means 10 hours per day and 40 hours per week and may not include any hours worked on a Saturday or Sunday or on any of the following holidays:

1. January 1.
2. The last Monday in May.
3. July 4.
4. The first Monday in September.
5. The 4th Thursday in November.
6. December 25.
7. The day before if January 1, July 4 or December 25 falls on a Saturday.
8. The day following if January 1, July 4 or December 25 falls on a Sunday.

s. 66.0903 (10) RECORDS; INSPECTION; ENFORCEMENT.

(a) Each contractor, subcontractor, or contractor's or subcontractor's agent performing work on a project of public works that is subject to this section shall keep full and accurate records clearly indicating the name and trade or occupation of every person performing the work described in sub. (4) and an accurate record of the number of hours worked by each of those persons and the actual wages paid for the hours worked.

s. 66.0903 (11) LIABILITY AND PENALTIES.

(a) 1. Any contractor, subcontractor, or contractor's or subcontractor's agent who fails to pay the prevailing wage rate determined by the department under sub. (3) or who pays less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor is liable to any affected employee in the amount of his or her unpaid wages or his or her unpaid overtime compensation and in an additional amount as liquidated damages as provided under subd. 2., 3., whichever is applicable.

2. If the department determines upon inspection under sub. (10) (b) or (c) that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the department shall order the contractor to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages within a period specified by the department in the order.

3. In addition to or in lieu of recovering the liability specified in subd. 1. as provided in subd. 2., any employee for and in behalf of that employee and other employees similarly situated may commence an action to recover that liability in any court of competent jurisdiction. If the court finds that a contractor, subcontractor, or contractor's or subcontractor's agent has failed to pay the prevailing wage rate determined by the department under sub. (3) or has paid less than 1.5 times the hourly basic rate of pay for all hours worked in excess of the prevailing hours of labor, the court shall order the contractor, subcontractor, or agent to pay to any affected employee the amount of his or her unpaid wages or his or her unpaid overtime compensation and an additional amount equal to 100 percent of the amount of those unpaid wages or that unpaid overtime compensation as liquidated damages.

5. No employee may be a party plaintiff to an action under subd. 3. unless the employee consents in writing to become a party and the consent is filed in the court in which the action is brought. Notwithstanding s. 814.04 (1), the court shall, in addition to any judgment awarded to the plaintiff, allow reasonable attorney fees and costs to be paid by the defendant.

BUILDING OR HEAVY CONSTRUCTION

Includes sheltered enclosures with walk-in access for the purpose of housing persons, employees, machinery, equipment or supplies and non-sheltered work such as canals, dams, dikes, reservoirs, storage tanks, etc. A sheltered enclosure need not be "habitable" in order to be considered a building. The installation of machinery and/or equipment, both above and below grade level, does not change a project's character as a building. On-site grading, utility work and landscaping are included within this definition. Residential buildings of four (4) stories or less, agricultural buildings, parking lots and driveways are NOT included within this definition.

SKILLED TRADES

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
101	Acoustic Ceiling Tile Installer Future Increase(s): Add \$1.42/hr on 6/1/2016.	33.02	17.12	50.14
102	Boilermaker	33.35	28.29	61.64
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add \$1.45 on 06/06/2016 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.86	20.03	52.89
104	Cabinet Installer Future Increase(s): Add \$1.42/hr on 6/1/2016.	33.02	17.12	50.14
105	Carpenter Future Increase(s): Add \$1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
106	Carpet Layer or Soft Floor Coverer Future Increase(s): Add \$1.42/hr on 6/1/2016.	33.02	17.12	50.14
107	Cement Finisher	33.15	16.40	49.55
108	Drywall Taper or Finisher	29.97	20.08	50.05
109	Electrician Future Increase(s): Add \$1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
110	Elevator Constructor	46.05	27.09	73.14
111	Fence Erector	18.72	5.78	24.50

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
112	Fire Sprinkler Fitter	36.78	19.97	56.75
113	Glazier	38.27	14.42	52.69
114	Heat or Frost Insulator	33.53	27.31	60.84
115	Insulator (Batt or Blown) Future Increase(s): Add \$1.42/hr on 6/1/2016.	33.02	17.12	50.14
116	Ironworker	32.50	20.58	53.08
117	Lather	32.72	16.00	48.72
118	Line Constructor (Electrical)	40.81	18.06	58.87
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	32.82	18.67	51.49
121	Metal Building Erector	22.40	6.27	28.67
122	Millwright Future Increase(s): Add \$1.47/hr on 6/1/2016.	34.79	17.17	51.96
123	Overhead Door Installer	31.93	13.39	45.32
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add \$1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68
127	Pipeline Fuser or Welder (Gas or Utility)	44.20	18.26	62.46
129	Plasterer	32.82	18.81	51.63
130	Plumber	38.82	18.02	56.84
132	Refrigeration Mechanic	45.55	18.71	64.26
133	Roofer or Waterproofer	29.65	1.71	31.36
134	Sheet Metal Worker	35.55	24.67	60.22
135	Steamfitter	45.55	18.71	64.26
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	34.97	19.67	54.64
139	Terrazzo Finisher	25.72	18.54	44.26

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
140	Terrazzo Mechanic Future Increase(s): Add \$1.60 on 06/06/2016	33.98	18.96	52.94
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add \$1.45/hr on 6/06/2016.	31.59	19.61	51.20
143	Tuckpointer, Caulker or Cleaner Future Increase(s): Add \$1.45 on 06/06/2016 Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	32.86	20.03	52.89
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
146	Well Driller or Pump Installer Future Increase(s): Add \$1/hr on 6/1/2016; Add \$1/hr on 6/1/2017.	25.32	16.40	41.72
147	Siding Installer	17.00	6.71	23.71
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	20.41	57.14
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	25.00	12.55	37.55

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	33.69	19.78	53.47
203	Three or More Axle	18.25	21.61	39.86
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.25	21.61	39.86
207	Truck Mechanic	18.25	21.61	39.86

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Future Increase(s): Add \$1.25/hr eff. 06/06/2016 Premium Increase(s): Add \$1.00/hr for certified welder and pipelayer; Add \$.25/hr for mason tender.	25.81	15.63	41.44
302	Asbestos Abatement Worker	17.00	4.22	21.22
303	Landscaper	21.90	9.83	31.73
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	20.83	18.39	39.22
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96
315	Final Construction Clean-Up Worker	29.01	7.20	36.21

**HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
501	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Milling Machine; Boring Machine (Directional, Horizontal or Vertical); Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Backhoe (Track Type) Having a Mfgr's Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Crane, Shovel, Dragline, Clamshells; Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Grader or Motor Patrol; Master Mechanic; Mechanic or Welder; Robotic Tool Carrier (With or Without Attachments); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Tractor (Scraper, Dozer, Pusher, Loader); Trencher (Wheel Type or Chain Type Having Over 8 Inch Bucket). Future Increase(s): Add \$1.60/hr on 6/3/2016.	35.22	20.38	55.60
502	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Environmental Burner; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Jeep Digger; Screed (Milling Machine); Skid Rig; Straddle Carrier or Travel Lift; Stump Chipper; Trencher (Wheel Type or Chain Type Having 8 Inch Bucket & Under). Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
503	Air Compressor (&/or 400 CFM or Over); Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Greaser; High Pressure Utility Locating Machine (Daylighting Machine); Mulcher; Oiler; Post Hole Digger or Driver; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.60/hr on 6/3/2016.	32.62	20.38	53.00
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
505	Work Performed on the Great Lakes Including Crane or Backhoe Operator; Assistant Hydraulic Dredge Engineer; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder; 70 Ton & Over Tug Operator. Future Increase(s): Add \$1.25/hr on 1/1/2017. Premium Increase(s): Add \$.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
506	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery. Future Increase(s): Add \$1.25/hr on 1/1/2017.	39.20	23.09	62.29
507	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

**HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
508	Boring Machine (Directional); Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add \$1.60/hr on 6/3/2016. Premium Increase(s):	37.67	20.38	58.05

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
	Add \$.50/hr for >200 Ton; Add \$1/hr at 300 Ton; Add \$1.50/hr at 400 Ton; Add \$2/hr at 500 Ton & Over.			
509	Backhoe (Track Type) Having a Mfgr's Rated Capacity of 130,000 Lbs. or Over; Boring Machine (Horizontal or Vertical); Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Pile Driver; Versi Lifts, Tri-Lifts & Gantrys (20,000 Lbs. & Over). Future Increase(s): Add \$1.60/hr on 6/3/2016. Premium Increase(s): Add \$.25/hr for all >45 Ton lifting capacity cranes.	36.42	20.38	56.80
510	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Dredge (NOT Performing Work on the Great Lakes); Forklift (Machinery Moving or Steel Erection, 25 Ft & Over); Gradall (Cruz-Aire Type); Hydro-Blaster (10,000 PSI or Over); Milling Machine; Skid Rig; Traveling Crane (Bridge Type). Future Increase(s): Add \$1.60/hr on 6/3/2016.	35.22	20.38	55.60
511	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Bulldozer or Endloader (Over 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Environmental Burner; Gantrys (Under 20,000 Lbs.); Grader or Motor Patrol; High Pressure Utility Locating Machine (Daylighting Machine); Manhoist; Material or Stack Hoist; Mechanic or Welder; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tining or Curing Machine; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
512	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Grout Pump; Hoist (Tugger, Automatic); Industrial Locomotives; Jeep Digger; Lift Slab Machine; Mulcher; Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames. Future Increase(s): Add \$1.60/hr on 6/3/2016.	32.62	20.38	53.00
513	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Boatmen (NOT Performing Work on the Great Lakes); Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Elevator; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Forklift; Generator (&/or 150 KW or Over); Greaser; Heaters (Mechanical); Loading Machine (Conveyor); Oiler; Post Hole Digger or Driver; Prestress Machine; Pump (3 Inch or Over) or Well Points; Refrigeration Plant or Freeze Machine; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.60/hr on 6/3/2016.	31.99	20.38	52.37
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add \$1/hr on 5/30/2016.	37.04	22.44	59.48
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	33.82	20.30	54.12
516	Fiber Optic Cable Equipment	29.50	0.68	30.18

SEWER, WATER OR TUNNEL CONSTRUCTION
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Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

CODE	TRADE OR OCCUPATION	FRINGE BENEFITS MUST BE PAID ON <u>All</u> Hours Worked	HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
			\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason		32.82	18.67	51.49
105	Carpenter		32.72	16.00	48.72
107	Cement Finisher Future Increase(s): Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.		35.97	17.85	53.82
109	Electrician		52.00	1.50	53.50
111	Fence Erector		18.72	5.78	24.50
116	Ironworker		32.50	20.58	53.08
118	Line Constructor (Electrical)		40.81	18.06	58.87
125	Pavement Marking Operator		30.00	18.81	48.81
126	Piledriver		33.24	16.00	49.24
130	Plumber Future Increase(s): Add \$1.50 on 6/1/16		39.95	19.45	59.40
135	Steamfitter		44.20	18.26	62.46
137	Teledata Technician or Installer		22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner		32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)		31.00	20.43	51.43
146	Well Driller or Pump Installer Future Increase(s): Add \$1/hr on 6/1/2016; Add \$1/hr on 6/1/2017.		25.32	16.40	41.72
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY		36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY		32.65	15.52	48.17

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	19.00	0.00	19.00
203	Three or More Axle	19.00	0.00	19.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.69	19.78	53.47
205	Pavement Marking Vehicle	19.00	0.00	19.00
207	Truck Mechanic	19.00	0.00	19.00

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Future Increase(s): Add \$1.25/hr eff. 06/06/2016 Premium Increase(s): Add \$.20 for blaster, bracer, manhole builder, caulker, bottomman and power tool; Add \$.55 for pipelayer; Add \$1.00 for tunnel work 0-15 lbs. compressed air; Add \$2.00 for over 15-30 lbs. compressed air; Add \$3.00 for over 30 lbs. compressed air.	27.18	15.64	42.82
303	Landscaper	41.00	0.00	41.00
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

**HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
521	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Master Mechanic; Pile Driver. Premium Increase(s): Add \$.25/hr for operating tower crane.	38.09	20.80	58.89
522	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump (Over 46 Meter), Concrete Conveyor (Rotec or Bidwell Type); Concrete Spreader & Distributor; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Dredge (NOT Performing Work on the Great Lakes); Milling Machine; Skid Rig; Telehandler; Traveling Crane (Bridge Type). Future Increase(s): Add \$1.60/hr on 6/3/2016.	35.22	20.38	55.60
523	Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Boring Machine (Horizontal or Vertical); Bulldozer or Endloader (Over 40 hp); Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Concrete Pump (46 Meter & Under), Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Manhoist; Material or Stack Hoist; Mechanic or Welder; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yd or More Capacity; Screed (Milling Machine); Sideboom; Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type Having Over 8-Inch Bucket). Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
524	Backfiller; Broom or Sweeper; Bulldozer or Endloader (Under 40 hp); Compactor (Self-Propelled 85 Ft Total Drum Width & Over, or Tractor Mounted, Towed & Light Equipment); Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Finishing Machine (Road Type); Environmental Burner; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Hoist (Tugger, Automatic); Grout Pump; Jeep Digger; Lift Slab Machine; Mulcher; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Screw or Gypsum Pumps; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Stump Chipper; Tining or Curing Machine; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	33.69	21.75	55.44
525	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Compactor (Self-Propelled 84 Ft Total Drum Width & Under, or Tractor Mounted, Towed & Light Equipment); Crusher, Screening or Wash Plant; Farm or Industrial Type Tractor; Fireman (Asphalt Plant NOT Performing Work on the Great Lakes); Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Loading Machine (Conveyor); Post Hole Digger or Driver; Refrigeration Plant or Freeze Machine; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.60/hr on 6/3/2016.	31.99	20.38	52.37
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	30.99	19.78	50.77
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
528	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36
529	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87
530	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under), Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87

AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

Includes all airport projects (excluding buildings) and all projects awarded by the Wisconsin Department of Transportation (excluding buildings).

SKILLED TRADES

CODE	TRADE OR OCCUPATION	Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		
		HOURLY BASIC RATE OF PAY \$	HOURLY FRINGE BENEFITS \$	TOTAL \$
103	Bricklayer, Blocklayer or Stonemason	31.55	18.52	50.07
105	Carpenter Future Increase(s): Add \$1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
107	Cement Finisher Future Increase(s): Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add \$1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
111	Fence Erector	35.62	0.00	35.62
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	29.87	18.79	48.66
125	Pavement Marking Operator	31.24	17.30	48.54
126	Piledriver	30.11	21.09	51.20
133	Roofer or Waterproofer	30.40	2.23	32.63
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	17.37	50.02
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.09	39.62
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	36.72	21.15	57.87
203	Three or More Axle Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	25.78	18.96	44.74
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx .	30.82	21.85	52.67
205	Pavement Marking Vehicle	23.82	17.72	41.54
206	Shadow or Pilot Vehicle	25.28	18.31	43.59
207	Truck Mechanic	25.28	18.31	43.59

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer Future Increase(s): Add \$1.00/hr eff. 06/01/2016; Add \$1.00/hr eff. 06/01/2017 Premium Increase(s): Add \$.10/hr for topman, air tool operator, vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add \$.15/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add \$.20/hr for blaster and powderman; Add \$.25/hr for bottomman; Add \$.35/hr for line and grade specialist; Add \$.45/hr for pipelayer. / DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	30.95	15.65	46.60
302	Asbestos Abatement Worker	17.00	4.22	21.22
303	Landscaper Future Increase(s): Add \$1.00/hr eff. 06/01/2016; Add \$1.00/hr eff. 06/01/2017 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	30.95	15.65	46.60
304	Flagperson or Traffic Control Person Future Increase(s): Add \$1.00/hr eff. 06/01/2016; Add \$1.00/hr eff. 06/01/2017 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	27.30	15.65	42.95

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

**HEAVY EQUIPMENT OPERATORS
AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
531	Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Traveling Crane (Bridge Type). Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx .	38.27	21.85	60.12
532	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With A Lifting Capacity Of 4,000 Lbs., & Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx .	37.77	21.85	59.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
533	<p>Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boatmen (NOT Performing Work on the Great Lakes); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane Wlth a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.</p> <p>Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsin.gov/Page/s/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx.</p>	37.27	21.85	59.12

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
534	<p>Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine.</p> <p>Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx.</p>	37.01	21.85	58.86
535	<p>Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.</p> <p>Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx.</p>	36.72	21.85	58.57
536	Fiber Optic Cable Equipment.	29.50	0.68	30.18
537	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
538	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder.	41.65	21.71	63.36

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
539	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or More); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87
540	Work Performed on the Great Lakes Including Deck Equipment Operator, Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks-Great Lakes ONLY.	36.72	21.15	57.87

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION
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Includes roads, streets, alleys, trails, bridges, paths, racetracks, parking lots and driveways (except residential or agricultural), public sidewalks or other similar projects (excluding projects awarded by the Wisconsin Department of Transportation).

SKILLED TRADES

<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u>	<u>HOURLY FRINGE BENEFITS</u>	<u>TOTAL</u>
		\$	\$	\$
103	Bricklayer, Blocklayer or Stonemason	32.82	18.67	51.49
105	Carpenter Future Increase(s): Add \$1.42/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.02	17.12	50.14
107	Cement Finisher Future Increase(s): Add \$1.75 on 6/1/16. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.40/hr when the Wisconsin Department of Transportation or responsible governing agency requires that work be performed at night under artificial illumination with traffic control and the work is completed after sunset and before sunrise.	35.97	17.85	53.82
109	Electrician Future Increase(s): Add \$1.25/hr on 6/1/16. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	35.75	19.97	55.72
111	Fence Erector	18.72	5.78	24.50
116	Ironworker	32.50	20.58	53.08
118	Line Constructor (Electrical)	40.81	18.06	58.87
124	Painter	26.70	16.65	43.35
125	Pavement Marking Operator	30.00	18.81	48.81
126	Piledriver Future Increase(s): Add \$1.44/hr on 6/1/2016. Premium Increase(s): DOT PREMIUM: Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	33.56	17.12	50.68

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
133	Roofer or Waterproofer	29.65	1.71	31.36
137	Teledata Technician or Installer	22.50	12.74	35.24
143	Tuckpointer, Caulker or Cleaner	32.82	18.67	51.49
144	Underwater Diver (Except on Great Lakes)	36.74	16.00	52.74
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	36.73	15.92	52.65
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	32.65	15.52	48.17
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	28.57	13.71	42.28
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	26.53	13.55	40.08
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.75	12.97	34.72

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	18.00	0.00	18.00
203	Three or More Axle	18.00	0.00	18.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07
205	Pavement Marking Vehicle	18.00	0.00	18.00
206	Shadow or Pilot Vehicle	18.00	0.00	18.00
207	Truck Mechanic	18.00	0.00	18.00

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer	26.34	15.17	41.51

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
303	Landscaper Future Increase(s): Add \$1.00/hr eff. 06/01/2016; Add \$1.00/hr eff. 06/01/2017 Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.25/hr for work on projects involving temporary traffic control setup, for lane and shoulder closures, when work under artificial illumination conditions is necessary as required by the project provisions (including prep time prior to and/or cleanup after such time period).	30.67	15.65	46.32
304	Flagperson or Traffic Control Person	20.92	14.80	35.72
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
314	Railroad Track Laborer	17.00	3.96	20.96

**HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
541	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self-Erecting Tower Crane With a Lifting Capacity Of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic. Future Increase(s): Add \$1.60/hr on 6/3/2016. Premium Increase(s): Add \$.50/hr for >200 Ton; Add \$1/hr at 300 Ton; Add \$1.50/hr at 400 Ton; Add \$2/hr at 500 Ton & Over.	37.67	20.38	58.05

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
542	<p>Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity of 4,000 Lbs. & Under; Crane, Tower Crane Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver.</p> <p>Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsin.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx.</p>	37.77	21.85	59.62
543	<p>Air Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Automatic Subgrader (Concrete); Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Boring Machine (Directional, Horizontal or Vertical); Bridge (Bidwell) Paver; Bulldozer or Endloader; Concrete Batch Plant, Batch Hopper; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Straddle Carrier or Travel Lift; Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames.</p> <p>Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017.</p> <p>Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsin.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx.</p>	37.27	21.85	59.12

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
544	Backfiller; Belting, Burlap, Texturing Machine; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler; Tining or Curing Machine. Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevailing-wage-compliance.aspx .	37.27	21.85	59.12
545	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Concrete Proportioning Plant; Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack.	31.62	19.78	51.40
546	Fiber Optic Cable Equipment.	29.50	0.68	30.18
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	41.65	21.71	63.36
548	Work Performed on the Great Lakes Including 70 Ton & Over Tug Operator; Assistant Hydraulic Dredge Engineer; Crane or Backhoe Operator; Hydraulic Dredge Leverman or Diver's Tender; Mechanic or Welder. Future Increase(s): Add \$1.25/hr on 1/1/2017. Premium Increase(s): Add \$.50/hr for Friction Crane, Lattice Boom or Crane Certification (CCO).	44.05	23.24	67.29
549	Work Performed on the Great Lakes Including Deck Equipment Operator or Machineryman (Maintains Cranes Over 50 Tons or Backhoes 115,000 Lbs. or more); Tug, Launch or Loader, Dozer or Like Equipment When Operated on a Barge, Breakwater Wall, Slip, Dock or Scow, Deck Machinery.	36.72	21.15	57.87

550	Work Performed on the Great Lakes Including Deck Equipment Operator; Machineryman or Fireman (Operates 4 Units or More or Maintains Cranes 50 Tons or Under or Backhoes 115,000 Lbs. or Under); Deck Hand, Deck Engineer or Assistant Tug Operator; Off Road Trucks - Great Lakes ONLY.	36.72	21.15	57.87
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**HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK**

Fringe Benefits Must Be Paid On All Hours Worked

<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	<u>HOURLY BASIC RATE OF PAY</u> \$	<u>HOURLY FRINGE BENEFITS</u> \$	<u>TOTAL</u> \$
551	Crane, Tower Crane, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of Over 100 Tons, Self Erecting Tower Crane With a Lifting Capacity of Over 4,000 Lbs., Crane With Boom Dollies; Crane, Tower Crane, Pedestal Tower or Derrick, With Boom, Leads and/or Jib Lengths Measuring 176 Ft or Over; Master Mechanic.	36.67	19.78	56.45
552	Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of 130,000 Lbs. or Over; Caisson Rig; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With or Without Attachments, With a Lifting Capacity of 100 Tons or Under, Self-Erecting Tower Crane With a Lifting Capacity Of 4,000 Lbs. & Under; Crane, Tower Crane, Portable Tower, Pedestal Tower or Derrick, With Boom, Leads &/or Jib Lengths Measuring 175 Ft or Under; Dredge (NOT Performing Work on the Great Lakes); Licensed Boat Pilot (NOT Performing Work on the Great Lakes); Pile Driver. Future Increase(s): Add \$1.30/hr on 6/1/2016; Add \$1.25/hr on 6/1/2017. Premium Increase(s): DOT PREMIUMS: 1) Pay two times the hourly basic rate on Sunday, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day. 2) Add \$1.50/hr night work premium. See DOT'S website for details about the applicability of this night work premium at: http://wisconsindot.gov/Pages/doing-bus/civil-rights/labornwage/prevaling-wage-compliance.aspx .	37.77	21.85	59.62

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
553	Air, Track, Rotary or Percussion Drilling Machine &/or Hammers, Blaster; Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type) Having a Mfgr.'s Rated Capacity of Under 130,000 Lbs., Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Conveyor System; Concrete Laser/Screed; Concrete Slipform Placer Curb & Gutter Machine; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Forestry Equipment, Timbco, Tree Shear, Tub Grinder, Processor; Gradall (Cruz-Aire Type); Grader or Motor Patrol; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Post Hole Digger or Driver; Railroad Track Rail Leveling Machine, Tie Placer, Extractor, Tamper, Stone Leveler or Rehabilitation Equipment; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Sideboom; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Trencher (Wheel Type or Chain Type); Tube Finisher; Tugger (NOT Performing Work on the Great Lakes); Winches & A-Frames. Future Increase(s): Add \$1.60/hr on 6/3/2016.	34.69	20.38	55.07
554	Backfiller; Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Environmental Burner; Farm or Industrial Type Tractor; Fireman (Asphalt Plant, Pile Driver & Derrick NOT Performing Work on the Great Lakes); Forklift; Greaser; Hoist (Tugger, Automatic); Jeep Digger; Joint Sawyer (Multiple Blade); Launch (NOT Performing Work on the Great Lakes); Lift Slab Machine; Mechanical Float; Mulcher; Power Subgrader; Robotic Tool Carrier (With or Without Attachments); Roller (Rubber Tire, 5 Ton or Under); Self-Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Telehandler.	36.17	19.19	55.36
555	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Augers (Vertical & Horizontal); Automatic Belt Conveyor & Surge Bin; Boiler (Temporary Heat); Crusher, Screening or Wash Plant; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Mudjack; Oiler; Prestress Machine; Pug Mill; Pump (3 Inch or Over) or Well Points; Rock, Stone Breaker; Screed (Milling Machine); Stump Chipper; Tank Car Heaters; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.60/hr on 6/3/2016.	32.62	20.38	53.00
556	Fiber Optic Cable Equipment.	29.50	0.68	30.18

RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

Includes single family houses or apartment buildings of no more than four (4) stories in height and all buildings, structures or facilities that are primarily used for agricultural or farming purposes, excluding commercial buildings. For classification purposes, the exterior height of a residential building, in terms of stories, is the primary consideration. All incidental items such as site work, driveways, parking lots, private sidewalks, private septic systems or sewer and water laterals connected to a public system and swimming pools are included within this definition. Residential buildings of five (5) stories and above are NOT included within this definition.

SKILLED TRADES

<u>CODE</u>	<u>TRADE OR OCCUPATION</u>	Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		
		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
		\$	\$	\$
101	Acoustic Ceiling Tile Installer	37.41	0.00	37.41
102	Boilermaker	33.35	28.29	61.64
103	Bricklayer, Blocklayer or Stonemason	32.82	9.93	42.75
104	Cabinet Installer	20.00	0.46	20.46
105	Carpenter	25.39	5.03	30.42
106	Carpet Layer or Soft Floor Coverer	24.04	4.89	28.93
107	Cement Finisher	23.86	3.43	27.29
108	Drywall Taper or Finisher	27.00	0.00	27.00
109	Electrician	20.00	12.47	32.47
110	Elevator Constructor	46.05	27.09	73.14
111	Fence Erector	19.45	4.70	24.15
112	Fire Sprinkler Fitter	33.00	18.96	51.96
113	Glazier	38.27	14.42	52.69
114	Heat or Frost Insulator	17.00	0.00	17.00
115	Insulator (Batt or Blown)	20.00	12.35	32.35
116	Ironworker	24.30	14.25	38.55
117	Lather	25.39	5.03	30.42
119	Marble Finisher	25.72	18.54	44.26
120	Marble Mason	32.82	9.93	42.75
121	Metal Building Erector	13.60	6.57	20.17
123	Overhead Door Installer	18.00	0.00	18.00
124	Painter	26.24	0.00	26.24
125	Pavement Marking Operator	30.00	18.81	48.81

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
129	Plasterer	30.00	9.21	39.21
130	Plumber	30.00	11.56	41.56
132	Refrigeration Mechanic	22.50	9.03	31.53
133	Roofer or Waterproofer	21.00	4.10	25.10
134	Sheet Metal Worker	23.22	5.45	28.67
135	Steamfitter	17.05	0.94	17.99
137	Teledata Technician or Installer	22.50	12.74	35.24
138	Temperature Control Installer	22.50	2.36	24.86
139	Terrazzo Finisher	25.72	18.54	44.26
140	Terrazzo Mechanic	33.67	17.82	51.49
141	Tile Finisher	30.00	0.00	30.00
142	Tile Setter Future Increase(s): Add \$1.45/hr on 6/06/2016.	31.59	19.61	51.20
143	Tuckpointer, Caulker or Cleaner	25.00	2.99	27.99
146	Well Driller or Pump Installer	29.00	0.64	29.64
147	Siding Installer	14.00	0.00	14.00

TRUCK DRIVERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
201	Single Axle or Two Axle	16.50	0.50	17.00
203	Three or More Axle	21.53	3.34	24.87
205	Pavement Marking Vehicle	21.53	3.34	24.87
207	Truck Mechanic	21.53	3.34	24.87

LABORERS

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
301	General Laborer	17.20	9.26	26.46
302	Asbestos Abatement Worker	18.00	3.22	21.22

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
303	Landscaper	15.00	4.03	19.03
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	19.35	0.00	19.35
315	Final Construction Clean-Up Worker	15.00	0.00	15.00

**HEAVY EQUIPMENT OPERATORS
RESIDENTIAL OR AGRICULTURAL CONSTRUCTION**

Fringe Benefits Must Be Paid On <u>All</u> Hours Worked		HOURLY BASIC RATE OF PAY	HOURLY FRINGE BENEFITS	TOTAL
CODE	TRADE OR OCCUPATION	\$	\$	\$
557	Asphalt Heater, Planer & Scarifier; Asphalt Milling Machine; Asphalt Screed; Backhoe (Track Type); Backhoe (Mini, 15,000 Lbs. & Under); Bituminous (Asphalt) Plant & Paver, Screed; Boring Machine (Directional, Horizontal or Vertical); Bulldozer or Endloader; Concrete Breaker (Large, Auto, Vibratory/Sonic, Manual or Remote); Concrete Bump Cutter, Grinder, Planing or Grooving Machine; Concrete Conveyor System; Concrete Laser/Screed; Concrete Paver (Slipform); Concrete Pump, Concrete Conveyor (Rotec or Bidwell Type); Concrete Slipform Placer Curb & Gutter Machine; Concrete Spreader & Distributor; Crane (Carry Deck, Mini) or Truck Mounted Hydraulic Crane (10 Tons or Under); Crane With a Lifting Capacity of 25 Tons or Under; Crane, Shovel, Dragline, Clamshells; Forestry Equipment, TImbco, Tree Shear, Tub Grinder, Processor; Grader or Motor Patrol; Grout Pump; Hydro-Blaster (10,000 PSI or Over); Loading Machine (Conveyor); Manhoist; Material or Stack Hoist; Mechanic or Welder; Milling Machine; Roller (Over 5 Ton); Scraper (Self Propelled or Tractor Drawn) 5 cu yds or More Capacity; Shoulder Widener; Skid Rig; Stabilizing or Concrete Mixer (Self-Propelled or 14S or Over); Tractor (Scraper, Dozer, Pusher, Loader); Tractor or Truck Mounted Hydraulic Backhoe; Tractor or Truck Mounted Hydraulic Crane (10 Tons or Under); Trencher (Wheel Type or Chain Type); Winches & A-Frames.	34.22	19.55	53.77
558	Air Compressor (&/or 400 CFM or Over); Air, Electric or Hydraulic Jacking System; Backfiller; Belting, Burlap, Texturing Machine; Boiler (Temporary Heat); Broom or Sweeper; Compactor (Self-Propelled or Tractor Mounted, Towed & Light Equipment); Concrete Finishing Machine (Road Type); Farm or Industrial Type Tractor; Forklift; Generator (&/or 150 KW or Over); Heaters (Mechanical); High Pressure Utility Locating Machine (Daylighting Machine); Jeep Digger; Lift Slab Machine; Mulcher; Oiler; Post Hole Digger or Driver; Power Subgrader; Pump (3 Inch or Over) or Well Points; Robotic Tool Carrier (With or Without Attachments); Rock, Stone Breaker; Roller (Rubber Tire, 5 Tons or Under); Screed (Milling Machine); Self Propelled Chip Spreader; Shouldering Machine; Skid Steer Loader (With or Without Attachments); Stump Chipper; Telehandler; Vibratory Hammer or Extractor, Power Pack. Future Increase(s): Add \$1.60/hr on 6/3/2016.	31.99	20.38	52.37

***** END OF RATES *****

THE 2015-17 BUDGET BILL MADE SIGNIFICANT CHANGES TO WISCONSIN'S PREVAILING WAGE LAWS. HOWEVER, THOSE CHANGES DO NOT GO INTO EFFECT UNTIL JANUARY 1, 2017.

During calendar year 2016, DWD will continue to enforce prevailing wage laws for local governmental unit and state agency public works projects under current prevailing wage laws.

2015 Wisconsin Act 55 (the budget bill) repealed the state prevailing wage law for **local governmental units** such as villages, towns, cities, school districts, or sewerage districts effective January 1, 2017. However, if a local governmental unit:

- issues a Request for Bids before January 1, 2017, for a project of public works that is subject to bidding or,
- enters into a contract before January 1, 2017, for a project of public works that is not subject to bidding,

then those public works projects are subject to the current prevailing wage law (§66.0903, Wis. Stats.) through the life of the project. Projects of public works with prevailing wage project determinations issued prior to 2017 continue to be subject to the current prevailing wage law through the life of the project even though the project may have work going on in 2017 or subsequent years.

Contractors working on local governmental unit projects with prevailing wage rate determinations must continue to pay employees the appropriate prevailing wage and maintain required prevailing wage payroll records. For instance, if a contractor is working in 2018 on a public works project with a project determination issued prior to 2017, then the contractor is required to comply with the "old" prevailing wage rate law (§66.0903, Wis. Stats.). After January 1, 2017, DWD will continue to enforce prevailing wage requirements for projects with DWD prevailing wage determinations issued under the "old" prevailing wage laws (§§ 66.0903 & 103.49, Wis. Stats.).

For new public works projects starting on January 1, 2017, state prevailing wage law will only apply to **state agency** and **state highway** projects. Prevailing wage rates applicable to state agencies will be those issued by the U.S. Department of Labor under the Davis-Bacon Act, 40 U.S.C. 3142. The Wisconsin Department of Administration will enforce the new state agency prevailing wage law (§16.856, Wis. Stats.) and the Wisconsin Department of Transportation will continue to enforce prevailing wage on state highway projects (under a law renumbered as §84.062, Wis. Stats.).

POST THE WHITE SHEET

As the public entity receiving this prevailing wage rate determination, **YOU ARE REQUIRED** by law to post the prevailing wage rate determination (i.e., white sheet) in at least one conspicuous and easily accessible place on the project site that is available to all construction workers. The white sheet must remain posted from the onset of the project until all construction labor on the project has been completed.

[See, Wis. Admin. Code §DWD 290.12(1)]

Posting the white sheet inside the general contractor's trailer does not meet this requirement. That placement is not available/accessible to all workers and is not a location over which you have control.

If you have questions about posting, please call (608)266-6861 and ask for prevailing wage intake.

PREVAILING WAGE – Contractors

Any public works project that has a total estimated project cost that equals or exceeds prevailing wage project thresholds requires a prevailing wage rate determination issued by the Department of Workforce Development (DWD). Public works include erecting, constructing, remodeling, repairing, demolishing, alterations, painting and decorating projects for a local governmental unit or state agency. State law excludes minor service or maintenance work, warranty work, or work under a supply-and-installation contract. There is a statutory definition for most of these exclusions. The prevailing wage laws that apply to local governmental units and their contractors are §§66.0903 and 103.503, Wis. Stats. The prevailing wage laws that apply to state agencies and their contractors are §§103.49 and 103.503, Wis. Stats. The applicable administrative rules for all prevailing wage projects are DWD 290 and DWD 294, Wis. Adm. Code. These laws include provisions that apply to all contractors and subcontractors working on prevailing wage projects.

Any contractor or subcontractor working on a local governmental unit or state agency's public works project that equals or exceeds current prevailing wage project thresholds must do all of the following:

- Receive and review the project's prevailing wage rate determination (i.e., white sheet).
- Tell subcontractors the project is subject to state prevailing wage law and include the prevailing wage rate determination in the construction contract, or if there is no written contract, provide a copy of the project determination to each subcontractor.
- Hire subcontractors who do *not* appear on the "Consolidated List of Debarred Contractors."
- Have a written substance abuse testing program in place that fulfills the requirements of §103.503, Wis. Stats., before commencing work on the project.

- Notify subcontractors that if DWD finds that a contractor or subcontractor violated the prevailing wage law, DWD will assess liquidated damages of 100% of the wages owed to employees.
- Apply to DWD for subjourney wage rates prior to employing these individuals on the project.
- Receive and retain a completed Affidavit of Compliance from each subcontractor brought on to the project before providing final payment to those subcontractors.
- Submit a completed Affidavit of Compliance to the contractor who brought the subcontractor on to the project before receiving final payment for the project.
- Maintain payroll records for 3 years that comply with §§66.0903(10)(a) or 103.49(5)(a), Stats. and DWD 274.06.
- Respond to requests from DWD or the project owner to provide payroll records and/or respond to prevailing wage complaints filed by employees or third parties.

For more information, visit the prevailing wage website: http://dwd.wisconsin.gov/er/prevailing_wage_rate/default.htm. For further assistance, call the Equal Rights Division at 608-266-6861 and ask for prevailing wage.