City of Milwaukee

Department of Public Works

Infrastructure Services Division
Facilities Development and Management Section

R. A. ANDERSON WATER TOWER AND MUNICIPAL BUILDING
ANTENNA WORK, CONCRETE PARAPET AND LEDGE REPAIRS
4001 S. 6TH STREET
Milwaukee, Wisconsin

April 2012

Project Number: BU11091370

Official Notice No. 89

CITY OF MILWAUKEE, WISCONSIN

DEPARTMENT OF PUBLIC WORKS

INFRASTRUCTURE SERVICES DIVISION

FACILITIES DEVELOPMENT AND MANAGEMENT SECTION

PROJECT MANUAL

GOVERNING THE

R. A. ANDERSON WATER TOWER AND MUNICIPAL BUILDING

ANTENNA WORK, CONCRETE PARAPET AND LEDGES REPAIR

4001 S. 6th Street

MILWAUKEE, WISCONSIN 53221

Project No. BU11091370

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CITY OF MILWAUKEE
GENERAL OFFICIAL NOTICE
TO CONTRACTORS

Separate sealed bids for each project will be received until 10:30 A.M. of the bid opening date at which time bids will be publicly opened and read for furnishing all material and doing all work for each project in accordance with the requirements of the respective Official Notice on the bid form furnished in accordance with plans, specifications, contract documents, and proposed form of contract on file in the office of the Department of Public Works, Municipal Building, 841 N. Broadway, Room 506, Milwaukee, Wisconsin, 53202.

PROSPECTIVE BIDDERS ARE TO CAREFULLY EXAMINE AND REVIEW ALL CONTRACT DOCUMENTS AND MATERIALS IN SAID OFFICE BEFORE SUBMITTING BID.

AFFIDAVITS OF NO INTEREST MUST ACCOMPANY THE BIDS, AND THE FAILURE OF PROSPECTIVE BIDDERS TO COMPLY WITH THESE REQUIREMENTS MAY DISQUALIFY THE BID.

THE CONTRACTOR/LESSEE AGREES TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT OF 1990, 42 U.S.C. § 12101, ET. SEQ. THE TDD NUMBER FOR PUBLIC WORKS IS (414) 286-2025.

As part of the bid each bidder shall submit a list of anticipated subcontractors and the class of work to be performed by each, which list should not be added to nor altered without the written consent of the Commissioner of Public Works.

All contractor(s) and subcontractor(s) are required to furnish or have on file a certificate of insurance in accordance with the insurance provisions of the General Specifications.

All contractor(s) and subcontractor(s) are subject to the prevailing wage rates and hours of labor as prescribed by the Common Council of the City of Milwaukee consistent with provisions of Section 66.293 of the Wisconsin Statutes.

Copies of the actual work classifications and wage and fringe benefit rates enforced on this project are available in Room 506 of the Municipal Building.

Corporate surety will be required on performance and payment bonds for all projects listed in the following Official Notices. All applicable charter and Statutory provisions and ordinances, all the provisions of this official notice, invitation to bid, general and detailed specifications, special provisions, proposal, schedule of fixed prices, addendum and plans for this project and all other contract documents set forth in the invitation to bid will be incorporated and made part of the contract as if therein set forth in full.

Tie bids, when the lowest ones, will be decided by the Commissioner of Public Works.

The Commissioner of Public Works reserves the right to reject any or all bids.

Signed: GHASSAN KORBAN
Commissioner of Public Works

Countersigned: W. MARTIN MORICS,
City Comptroller

CITY OF MILWAUKEE
SPECIFIC OFFICIAL NOTICE NO. 89

Important Notice:

The Invitation to Bid, all bid documents and the Plans & Specifications for the project listed will be available electronically to prospective bidders via **http://www.mpw.net/bids/docs/89-2012.** Any required addenda or responses related to the listed projects will be posted on said website. Bidders are encouraged to utilize this electronic method of obtaining bid documents as the Department of Public Works intends to solely use this method for future projects. At this time however, a limited number of hard copies of the above documents will also be available at address listed below. **IF YOU ONLY PRINT THE DOCUMENTS FROM THE WEBSITE AND WOULD LIKE YOUR COMPANY'S NAME PLACED ON THE PLAN HOLDERS' LIST, PLEASE CALL 414-286-3314.**

Sealed bids will be opened on Wednesday, June 20, 2012 at 10:30 A.M. for the **R.A. ANDERSON WATERTOWER AND MUNICIPAL BUILDING, ANTENNA WORK, CONCRETE PARAPET AND LEDGE REPAIR**, located at 4001 SOUTH 6TH STREET MILWAUKEE WI 53221.

Bid Security Required: Bond, Certified Check, Cashier's Check, or Cash to accompany bid: 10% of Contractor's Base Bid

Time for Completion: 110 Working Days.

Liquidated Damages, per diem: $150.00

The MWSBE requirement for this project is 0% of the contract base bid.

The residency requirement for this project is 40% of all hours worked on the project.

The apprenticeship requirements for this project are: **1**

Construction Laborer

The contractor shall specifically note the MWSBE, residency, and apprenticeship forms for this project. If the forms are not filled out properly, it will be cause for rejection of the bid.

Plans and project manual will be furnished to the prospective bidders upon payment of a $10.00 non-refundable fee in room 506, Frank P. Zeidler Municipal Building, 841 North Broadway, Milwaukee, Wisconsin 53202. For general questions call 414-286-3314.

A $10.00 per set additional non-refundable fee is required to obtain bid documents by mail. Plans are sent via U.S. mail unless other arrangements are made by the contractor.

Contractor must comply with all provisions of the CITY OF MILWAUKEE GENERAL OFFICIAL NOTICE TO CONTRACTORS published herein and at http://mpw.milwaukee.gov/services/bids_home

Pre-Bid Meeting: A Pre-Bid Meeting is scheduled for Wednesday, June 13, 2012, at 2:00 p.m. in Room 606 of the Frank P. Zeidler Municipal Building, 841 North Broadway, Milwaukee, Wisconsin. Bidder participation is urged to become familiar with all aspects of the project and bidding requirements.

Signed:

_____
GHASSAN KORBAN
Commissioner of Public Works

PUBLISH SIX (6) TIMES INSERTION WITHOUT FAIL, Wednesday, June 06, 2012

SECTION 00100: INSTRUCTIONS TO BIDDERS

See also Instructions to Bidders in the "General Specifications" of the Department of Public Works, City of Milwaukee, Wisconsin, dated January 31, 1992, and all subsequent addenda.

BID FORM:

Submit lump sum prices for the work as indicated on the drawings and specified herein, complete in every respect.

Bids will not be accepted in any form except on the bid form included with this project manual.

The contractor must recognize and abide by the right of the Owner (City of Milwaukee) to accept or reject any or all bids in the best interests of the City.

ALTERNATE BIDS:

Each bidder shall examine the plans and project manual thoroughly to determine what extent the Alternates will affect the Bid.

Alternate Bid 1: Clean and Restore Existing Steel at Upper Catwalk

Provide a lump sum price to clean existing steel at the upper catwalk as indicated in the plans and project manual, including painting.

Alternate Bid 2: Remove and Replace 30 Lineal Feet of Corroded Steel at the Upper Catwalk

Provide a lineal foot unit price to remove and replace corroded steel at the upper catwalk, as indicated in the plans and project manual.

Alternate Bid 3: Apply Prime Coatings and Fluid Membrane EPDM Roofing at the Upper Catwalk

Provide a lump sum price to apply prime coatings and fluid membrane EPDM at the upper catwalk, as indicated in the plans and project manual.

Alternate Bid 4: Remove and Replace the Existing Roof Hatch on the Upper Catwalk
Provide a lump sum price to remove the existing roof hatch and install a new roof hatch on the upper catwalk as indicated in the plans and project manual.

Alternate Bid 5: Remove and Replace Damaged Concrete on the Exterior Walls

Provide a square foot unit price to remove and replace damaged concrete on the exterior walls as shown on sheet S400 in the plans and in the project manual.

INFORMATIONAL PRICES

Informational Price A-1:

Provide a lump sum price for general conditions and contractors fee including mobilization, staging, etc.

Informational Price B-1:

Provide a lump sum price for swing stage, and public and site protection.

Informational Price C-1:

Provide a lump sum price for removing and disposing of existing antennas and accessories.

Informational Price D-1:

Provide a lump sum price for constructing the antenna ring and access plates.

Informational Price E-1:

Provide a lump sum price for installing new antennas.

Informational Price F-1:

Provide a lump sum price for installing lightning protection for the antennas.

Informational Price G-1:

Provide a lump sum price for applying water resistant coating on existing and repaired concrete ledges and inside and outside the upper parapet.

UNIT PRICES:

Each bidder shall provide on the bid proposal the following unit prices that were used in arriving at the base bid. The unit prices will be used for additions or deductions under the contract.

Unit Price A:

Provide a lineal foot price for epoxy injection grouting

Unit Price B:

Provide a square foot price for removal and replacement of damaged and/or missing sections of steel on the water tank.

Unit Price C:

Provide a cubic foot price for removal of unsound concrete at ledges.

Unit Price D:

Provide a cubic foot unit price for repairing concrete ledges, including steel reinforcement.

Unit Price E:

Provide a unit price per location for removal of existing angles at the water tank.

Unit Price F:

Provide a unit price to remove existing cable sleeves and repair steel in the catwalk, where sleeves were removed.

Unit Price G:

Provide a cubic foot unit price for repairing full depth concrete walls, as described in Alternate Bid 5.

CONTRACT AWARD:

The Commissioner of Public Works will award the contract on the basis of the Base Bid only or the Base Bid and the Alternate Bid(s) as funds permit.

CONTRACT BREAKDOWN:

Shortly after the award of the contract, each contractor shall submit a list showing the cost breakdown of the items in his contract. This list will be used as a basis for estimates of work completed for partial payment.

SITE VISIT:

All contractors shall visit the site, consult the drawings and project manual, be familiar with the work of other contractors and determine for themselves all conditions affecting the work.

Failure by a contractor to be familiar with the project shall not release him from any obligation under this contract to complete the work in strict conformity with the plans and project manual and all City, State and Federal Codes or regulations pertaining to the work.

CONSTRUCTION START AND COMPLETION DATES:

The TOTAL WORKING DAYS are stated in the Specific Official Notice. The contractor may begin procuring materials and off-site fabricating (as appropriate and approved by Architect) on the date stated on the Notice to Proceed. The Notice to Proceed will be sent to the contractor directly following the signing of the contract.

BASE BID EXCLUSIONS:

None at this time.

CONTRACT BREAKDOWN:

Shortly after the award of the contract, each contractor shall submit a list showing the cost breakdown of the items in his contract. This list will be used as a basis for estimates of work completed for partial payment.

ADDITIONAL PLANS/PROJECT MANUALS

The successful contractor will be responsible for furnishing all additional copies of plans, project manuals, addenda, etc., as may be needed by the contractor and subcontractors. The City will cooperate by making originals available to the contractor's printer of choice.

END OF SECTION

SECTION 00700: GENERAL CONDITIONS

1. SCOPE:

   A. Index:

      1. Scope
      2. DPW General Specifications
      3. Definitions
      4. Control of Work and Materials
      5. Samples and Tests
      6. Project Coordination
      7. Supervision of Work
      8. Technical Specifications and Drawings
      9. Safety Regulations
      10. Code Rules

2. Department of Public Works General Specifications:

   Provisions of the Department of Public Works General Specifications dated January 31, 1992, and subsequent addenda except as may be modified or expanded upon in this project manual, shall apply to all contractors and subcontractors working on the project. Copies of the General Specifications may be obtained from the Department of Public Works General Office, Room 501 Zeidler Municipal Building, 841 North Broadway, Milwaukee, Wisconsin, or from the FACILITIES DEVELOPMENT AND MANAGEMENT SECTION, Room 602, Zeidler Municipal Building.

3. Definitions:

   A. Owner: City of Milwaukee.

   B. Facilities Manager: The Facilities Manager of FACILITIES DEVELOPMENT AND MANAGEMENT SECTION.

   C. Project Inspector: The authorized representative of the Commissioner assigned to make detailed inspection of any or all portions of the work and materials thereof. These inspections are not a substitute to those required by the Department of Neighborhood Services for permit and code compliance.

   D. Addenda: Written or graphic instruments issued prior to the execution of the contract which modify or interpret the bidding documents, including drawings and project manual by additions, deletions, clarifications or corrections. Addenda will become part of the contract documents when the contract is executed.

   E. Contract Drawings: Drawings of the work to be done as listed hereafter in Section 00850 Drawing Schedule and/or Section 00870 Plans and Details.

   F. Utility: WE Energies.

   G. End User: City of Milwaukee.

4. Control of Work and Materials:

   A. Detail and Shop Drawings: Shop drawings and other additional drawings which may be required for each contract of the work shall be prepared by each respective contractor unless

otherwise directed by the Facilities Manager. Prints shall be the same size as contract documents when practical. Prints of each drawing shall be submitted to the Facilities Manager for approval before proceeding with the work. Changes ordered by the Facilities Manager shall be made and revised prints submitted as above. The Facilities Manager's approval of drawings shall not relieve the contractor of responsibility for errors.

B. Primary Lines and Grades: The City of Milwaukee will mark two building corners along a line and will establish a benchmark, with a relative elevation, within close proximity to the site. Once established by the City, the contractor shall preserve all points and benchmark as long as needed during construction. The contractor will bear all costs associated with re-establishing points and benchmark.

C. Construction Lines and Grades: The contractor must bear sole responsibility for the correct transfer of all construction lines and grades from the primary lines and grades points. He shall take such measurements from existing work as may be necessary to insure the proper construction of his work.

D. Material Orders and Shipping Statements: The contractor shall furnish to the Facilities Manager at least two (2) copies of all material orders and shipping statements. Itemized weights of the materials and individual units of finished work shall be shown.

E. Weighing of Materials and Fabricated Units: The weighing of materials and fabricated units such as structural steel, casings, etc., when required, shall be done in the presence of the Commissioner's representative. The contractor shall be responsible for the satisfactory weighing of such materials and units.

F. Consignment and Delivery of Materials: The materials for the work shall be consigned to the contractor and he shall be responsible for the delivery of all materials required for the completion of the contract.

5. Samples and Tests:

A. Method of Sampling: Samples of the materials proposed or furnished for the work may be taken by the Commissioner at any time; at the point of manufacture, point of delivery or site of work. They will be selected, as far as practicable, in accordance with standard methods of sampling such materials as specified in the standard of the American Society for Testing Material. All sampling shall be done by authorized representatives of the Commissioner. Selections will be in an orderly and systematic manner, insuring samples representative of the lot.

B. A.S.T.M. Standards: Wherever the abbreviation A.S.T.M. is used in connection with the number of a standard specification, the specification referred to shall be the Standard of the American Society for Testing Materials, designated by that number, including all revisions in effect on the date of award of the contract. Should a revised or amended standard be issued by the American Society for Testing Materials which, in the opinion of the Commissioner, conflicts with or causes undesirable changes in the standards referred to herein, the Commissioner reserves the right, by means of addenda to the project manual, to continue under the provisions of the pertinent standard referred to herein.

C. Cost of Test Specimens and Samples: All test specimens of metals and all samples of non-metals required for tests shall be furnished by the contractor without cost to the City.

D. Costs of Tests: All tests on test specimens of metals will be made at the expense of the

contractor and the original test on samples of non-metals will be made at the expense of the City. In all cases, the testing procedure will be in accordance with Standard A.S.T.M. tests for such materials. Subsequent tests of non-metals requested by the contractor, when such tests are permitted by A.S.T.M. Specifications and approved by the Commissioner or subsequent tests ordered by the Commissioner will be made at the expense of the contractor.

6. Project Coordination:

A. Contractors are required, so far as possible; to arrange work and to dispose of materials so as not to interfere with the work or storage of materials of other contractors or City forces engaged upon the work.

B. Contractors shall give full cooperation to other trades and furnish any information necessary to permit the work of all trades to be installed satisfactorily and with the least possible interference or delay.

C. Where the work of a contractor will be installed in close proximity to the work of other trades, or where there is evidence that the work of a contractor will interfere with the work of other trades, he shall assist in working out space conditions to make satisfactory adjustments.

D. If a contractor installs work before coordinating it with other trades or so as to cause interference with work of other trades, he shall make necessary changes in his work to correct the condition without extra charge.

E. Contractors are required to join their work to that of others in a proper manner, and in accordance with the spirit of the plans and project manual, and to perform the work in the proper sequence in relation to that of other contractors, and as may be directed by the Project Inspector.

7. Supervision of Work:

A. Contractors shall furnish the services of an experienced engineer or superintendent.

B. He shall be constantly in charge of the installation of the work together with all subcontractors, skilled workers, helpers, and labor required to unload, transfer, erect, connect up, adjust, start, operate and test each system.

C. He shall be thoroughly acquainted with and be responsible for the various subcontractors' work so that it is properly coordinated and supervised to the satisfaction of the Commissioner of Public Works or his representative.

D. Upon written notice to a contractor of the lack of such coordination and supervision, the Commissioner of Public Works may authorize such services as may be required and deduct the cost of this service at an hourly rate of $60.00 per hour per worker from the contract for the work.

8. Technical Specifications and Drawings:

A. Governing order of Contract Documents:

1. The following provision modifies DPW General Specifications Item 2.1.3.1:

Anything mentioned in the Technical Specifications and not shown on the drawings or shown on the drawings and not mentioned in the Technical Specifications, shall be as if

shown on or mentioned in both. In case of difference between drawings and Technical Specifications, the Technical Specifications shall govern. In case of any discrepancy in drawings or Technical Specifications, the matter shall be immediately submitted to FACILITIES DEVELOPMENT AND MANAGEMENT SECTION for decision. Said discrepancy shall not be adjusted by the contractor.

B. All contractors shall have complete sets of plans and project manuals on the job site at all times.

9. Safety Regulations:

All work shall be done in accordance with the safety requirements referenced in the International Building Code, as adopted and amended by the State of Wisconsin and OSHA standards.

10. Code Rules:

The rulings, regulations and laws of the following shall be complied with in the completion of this project:

International Building Code, as amended and adopted by the State of Wisconsin
Plumbing and Drainage Codes of the City of Milwaukee
Ordinances of the City of Milwaukee
National Board of Fire Underwriters
OSHA
NFPA
FAA
NEC
IEEE
UL

Rev. 3/04

SECTION 00821: INSPECTION CHARGES

The contractor will be charged a fee for inspection for each and every day such inspection is required after the time allowed for completion has expired.

The amount of the fee for inspection shall be $325.00 per day.

The time allowed for completion is stated in the Specific Official Notice and shall start with the date on the Notice to Proceed which will be sent to the contractor directly following the signing of the contract. The time allowed includes the time required for fabricating and procuring material and doing the work at the building site.

PREVAILING WAGE RATE DETERMINATION
Issued by the State of Wisconsin
Department of Workforce Development
Pursuant to s. 66.0903, Wis. Stats.
Issued On: 01/13/2012
Amended On: 03/02/2012

DETERMINATION NUMBER: 201200107

EXPIRATION DATE: Prime Contracts MUST Be Awarded or Negotiated On Or Before 12/31/2012. If NOT, You MUST Reapply.

PROJECT NAME: ALL PUBLIC WORKS PROJECTS UNDER SEC. 66.0903, STATS.-CITY OF MILWAUKEE

PROJECT LOCATION: MILWAUKEE CITY, MILWAUKEE COUNTY, WI

CONTRACTING AGENCY: CITY OF MILWAUKEE-DEPT OF PUBLIC WORKS

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:	Time and one-half must be paid for all hours worked: - 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. 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. A DOT Premium (discussed below) may supersede this time and one-half requirement.
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, whevenever 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 journeyperson'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 All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	33.43	19.31	52.74
102	Boilermaker	31.09	21.87	52.96
103	Bricklayer, Blocklayer or Stonemason Future Increase(s): Add $.50 on 6/01/2012; Add $1.45/hr on 6/01/2013 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.	35.58	16.37	51.95
104	Cabinet Installer	29.06	15.16	44.22
105	Carpenter 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.	33.43	19.31	52.74
106	Carpet Layer or Soft Floor Coverer	31.68	18.55	50.23
107	Cement Finisher	30.87	16.33	47.20
108	Drywall Taper or Finisher Future Increase(s): Add $2.20/hr on 6/1/2012	28.97	17.74	46.71
109	Electrician Future Increase(s): Add $1.40/hr on 6/1/2012. Add $1.60/hr on 6/1/2013. 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.	31.54	20.95	52.49
110	Elevator Constructor	43.79	25.48	69.27
111	Fence Erector	27.00	0.00	27.00
112	Fire Sprinkler Fitter	36.82	19.03	55.85
113	Glazier	32.25	16.20	48.45
114	Heat or Frost Insulator	33.28	22.45	55.73

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
115	Insulator (Batt or Blown)	23.62	11.55	35.17
116	Ironworker	31.31	21.54	52.85
117	Lather	31.68	18.41	50.09
118	Line Constructor (Electrical)	35.97	18.08	54.05
119	Marble Finisher	31.16	16.27	47.43
120	Marble Mason	35.53	15.92	51.45
121	Metal Building Erector	21.05	7.82	28.87
122	Millwright	28.30	23.29	51.59
123	Overhead Door Installer	26.53	0.00	26.53
124	Painter Future Increase(s): Add $2.20/hr on 6/1/2012. Premium Increase(s): Add $.20/hr for paperhanging; Add $.35/hr for bridge, iron and drywall; Add $.75/hr for spraying and sandblasting; Add $.60/hr for EIFS work; Add $1.00/hr for lead based paint removal.	28.97	17.74	46.71
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
127	Pipeline Fuser or Welder (Gas or Utility)	30.52	18.84	49.36
129	Plasterer	20.13	1.03	21.16
130	Plumber	36.97	17.47	54.44
132	Refrigeration Mechanic	37.21	19.04	56.25
133	Roofer or Waterproofer Future Increase(s): Add $.50/hr. effective 06/01/2012	29.40	15.05	44.45
134	Sheet Metal Worker	37.20	16.37	53.57
135	Steamfitter	38.26	19.49	57.75
137	Teledata Technician or Installer 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.	24.65	15.67	40.32
138	Temperature Control Installer	29.63	19.17	48.80
139	Terrazzo Finisher	18.00	5.35	23.35
140	Terrazzo Mechanic	31.16	16.27	47.43

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
141	Tile Finisher	23.76	16.05	39.81
142	Tile Setter	29.95	15.64	45.59
143	Tuckpointer, Caulker or Cleaner 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.	34.35	15.92	50.27
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	25.32	15.30	40.62
147	Siding Installer	36.60	16.37	52.97
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	27.42	15.10	42.52
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	32.32	16.75	49.07
203	Three or More Axle Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. 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.	22.50	16.19	38.69
204	Articulated, Euclid, Dumptor, Off Road Material Hauler	33.32	17.60	50.92
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	24.91	15.35	40.26

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Premium Increase(s): Add $.11 for mortar mixer, fork lift operator, air and electric equipment and power buggy operators; Add $.22 for jackhammer operator, certified welder, gunite machineman.	28.82	15.61	44.43
302	Asbestos Abatement Worker	21.58	17.83	39.41
303	Landscaper	12.50	2.20	14.70
310	Gas or Utility Pipeline Laborer (Other Than Sewer and Water)	19.14	15.53	34.67
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased) Premium Increase(s): DOT PREMIUMS: Pay two times the hourly basic rate on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day & Christmas Day.	17.24	15.00	32.24
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
SITE PREPARATION, UTILITY OR LANDSCAPING WORK ONLY

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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).	32.32	18.18	50.50
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).	33.32	17.60	50.92

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	32.32	17.59	49.91
504	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
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. Premium Increase(s): Add $.50/hr for friction crane, lattice boom or crane certification (CCO).	37.45	19.45	56.90
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.	26.80	18.52	45.32
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.	27.75	19.15	46.90

HEAVY EQUIPMENT OPERATORS
EXCLUDING SITE PREPARATION, UTILITY, PAVING LANDSCAPING WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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. Premium Increase(s): Crane Operators with CCO certification add $.50/hr. Cranes with boom length over 200 ft. not exceeding 300 ft. OR lifting capacity over 200 ton not exceeding 300 ton add $.50/hr. Over 300 ton OR 300 ft. add $.01/hr. per foot OR ton whichever is greater.	39.16	19.10	58.26

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.66	19.10	57.76
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). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.16	19.10	57.26
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). Premium Increase(s): Crane Operators with CCO certification add $.50/hr.	38.16	19.10	57.26
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; 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; Trencher (Wheel Type or Chain Type Having 8-Inch Bucket & Under); Winches & A-Frames.	37.47	19.10	56.57

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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; Rock, Stone Breaker; Skid Steer Loader (With or Without Attachments); Vibratory Hammer or Extractor, Power Pack.	30.44	19.10	49.54
514	Gas or Utility Pipeline, Except Sewer & Water (Primary Equipment). Future Increase(s): Add $2/hr. on 1/1/2013.	34.89	19.68	54.57
515	Gas or Utility Pipeline, Except Sewer & Water (Secondary Equipment).	31.26	17.40	48.66
516	Fiber Optic Cable Equipment	25.74	15.85	41.59

SEWER, WATER OR TUNNEL CONSTRUCTION

Includes those projects that primarily involve public sewer or water distribution, transmission or collection systems and related tunnel work (excluding buildings).

SKILLED TRADES

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	35.53	15.92	51.45
105	Carpenter 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.	33.43	19.31	52.74
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; 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.	27.14	19.22	46.36
109	Electrician Future Increase(s): Add $1.40/hr on 6/1/2012. Add $1.60/hr on 6/1/2013. 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.	31.54	20.95	52.49
111	Fence Erector	27.00	0.00	27.00
116	Ironworker 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.	31.31	22.22	53.53
118	Line Constructor (Electrical)	35.97	18.08	54.05
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
130	Plumber	36.18	16.86	53.04
135	Steamfitter	35.81	19.04	54.85
137	Teledata Technician or Installer	24.65	15.17	39.82

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
143	Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
146	Well Driller or Pump Installer	24.22	14.80	39.02
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	27.42	15.10	42.52
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	15.16	43.94
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	17.80	9.00	26.80
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	23.00	8.64	31.64
203	Three or More Axle	17.54	13.41	30.95
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. 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.	22.50	16.19	38.69
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	17.54	13.41	30.95

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.73/hr on 6/4/2012. Premium Increase(s): Add $1.92 for bottomman; Add $2.03 for concrete manhole builder, bracer, jointman, or pipelayer; Add $4.83 for blaster. Add $2.00 for all tunnel work under 15 lbs. compressed air; Add $2.00 for 0-30 lbs. compressed air; Add $3.00 for over 30 lbs. compressed air.	27.72	15.61	43.33

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
303	Landscaper	12.50	2.20	14.70
304	Flagperson or Traffic Control Person	22.50	12.90	35.40
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
SEWER, WATER OR TUNNEL WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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): Crane Operators with CCO certification add $.50/hr. Cranes with boom length over 200 ft. not exceeding 300 ft. OR lifting capacity over 200 ton not exceeding 300 ton add $.50/hr. Over 300 ton OR 300 ft. add $.01/hr. per foot OR ton whichever is greater.	39.16	19.10	58.26
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 $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	33.91	18.55	52.46

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	32.96	18.55	51.51
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.	30.89	18.12	49.01
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 $2.05/hr on 6/4/2012. Premium Increase(s): Add $.25/hr for operating tower crane.	30.51	18.55	49.06
526	Boiler (Temporary Heat); Forklift; Greaser; Oiler.	29.44	18.10	47.54
527	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	36.20	18.81	55.01
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.	26.80	18.52	45.32
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.	26.80	18.52	45.32

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

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	32.66	15.92	48.58
105	Carpenter 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.	33.43	19.31	52.74
107	Cement Finisher Future Increase(s): Add $1.86 on 6/1/12; Add $1.87 on 6/1/13; Add $1.87 on 6/1/14; Add $1.87 on 6/1/15; 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.	29.33	17.03	46.36
109	Electrician	31.64	23.78	55.42
111	Fence Erector	35.62	0.00	35.62
116	Ironworker	31.31	21.54	52.85
118	Line Constructor (Electrical)	35.97	18.08	54.05
124	Painter	27.87	14.39	42.26
125	Pavement Marking Operator	27.87	14.39	42.26
126	Piledriver Premium Increase(s): Add $.65/hr for Piledriver Loftsman; Add $.75/hr for Sheet Piling Loftsman. 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.	29.56	24.96	54.52
133	Roofer or Waterproofer	28.85	14.60	43.45
137	Teledata Technician or Installer	24.65	15.17	39.82
143	Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	33.87	16.10	49.97
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY 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.	29.64	14.64	44.28
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	13.07	38.25
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. 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.	22.35	16.19	38.54
203	Three or More Axle	24.91	15.63	40.54
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1.75/hr on 6/1/2012; Add $1.85/hr on 6/1/2013. 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.	22.50	16.19	38.69
205	Pavement Marking Vehicle	23.84	14.70	38.54
206	Shadow or Pilot Vehicle	24.76	15.35	40.11
207	Truck Mechanic	24.91	15.63	40.54

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer Future Increase(s): Add $1.60/hr on 6/1/2012: Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. Premium Increase(s): Add $.15/hr for air tool operator, joint sawer and filler (pavement), vibrator or tamper operator (mechanical hand operated), chain saw operator and demolition burning torch laborer; Add $.35/hr for bituminous worker (raker and luteman), formsetter (curb, sidewalk and pavement) and strike off man; Add $.50/hr for line and grade specialist; Add $.65/hr for blaster and powderman; Add $2.01/hr for topman; Add $2.46/hr for bottomman; Add $3.23/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).	24.34	17.85	42.19
302	Asbestos Abatement Worker	22.00	16.86	38.86
303	Landscaper	23.71	15.03	38.74
304	Flagperson or Traffic Control Person Future Increase(s): Add $1.60/hr on 6/1/2012; Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. 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.	20.83	17.85	38.68
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
AIRPORT PAVEMENT OR STATE HIGHWAY CONSTRUCTION

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	34.22	18.90	53.12
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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	33.72	18.90	52.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
533	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 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); 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. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	33.22	18.90	52.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
534	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 Sawer (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. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	32.96	18.90	51.86
535	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. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	32.67	18.90	51.57
536	Fiber Optic Cable Equipment.	24.39	15.45	39.84
537	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	36.20	18.81	55.01
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.	26.80	18.52	45.32
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.	26.80	18.52	45.32

LOCAL STREET OR MISCELLANEOUS PAVING CONSTRUCTION

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

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
103	Bricklayer, Blocklayer or Stonemason	35.53	15.92	51.45
105	Carpenter	29.06	15.16	44.22
107	Cement Finisher	27.57	16.33	43.90
109	Electrician Future Increase(s): Add $.50/hr. effective 06/04/2012. 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.	28.74	17.86	46.60
111	Fence Erector	27.00	0.00	27.00
116	Ironworker	31.31	21.54	52.85
118	Line Constructor (Electrical)	35.97	18.08	54.05
124	Painter	28.47	16.74	45.21
125	Pavement Marking Operator	26.00	0.00	26.00
126	Piledriver	28.11	23.94	52.05
133	Roofer or Waterproofer	28.85	14.60	43.45
137	Teledata Technician or Installer	24.65	15.17	39.82
143	Tuckpointer, Caulker or Cleaner	34.30	15.47	49.77
144	Underwater Diver (Except on Great Lakes)	36.20	18.81	55.01
150	Heavy Equipment Operator - ELECTRICAL LINE CONSTRUCTION ONLY	35.42	12.90	48.32
151	Light Equipment Operator -ELECTRICAL LINE CONSTRUCTION ONLY	28.78	14.42	43.20
152	Heavy Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	25.18	13.07	38.25
153	Light Truck Driver - ELECTRICAL LINE CONSTRUCTION ONLY	23.38	12.48	35.86
154	Groundman - ELECTRICAL LINE CONSTRUCTION ONLY	21.30	10.97	32.27

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	15.00	0.00	15.00
203	Three or More Axle	20.00	6.00	26.00
204	Articulated, Euclid, Dumptor, Off Road Material Hauler Future Increase(s): Add $1/hr on 6/3/2012; Add $1/hr on 6/2/2013.	31.89	17.98	49.87
205	Pavement Marking Vehicle	19.25	10.84	30.09
206	Shadow or Pilot Vehicle	15.00	0.00	15.00
207	Truck Mechanic	20.00	6.00	26.00

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	21.73	17.04	38.77
303	Landscaper	22.96	15.37	38.33
304	Flagperson or Traffic Control Person Future Increase(s): Add $1.60/hr on 6/1/2012; Add $1.70/hr on 6/1/2013; Add $1.60/hr on 6/1/2014. 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.	23.55	13.45	37.00
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49
314	Railroad Track Laborer	17.00	1.06	18.06

HEAVY EQUIPMENT OPERATORS
CONCRETE PAVEMENT OR BRIDGE WORK

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	34.22	18.90	53.12
542	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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	33.72	18.90	52.62

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
543	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.	31.89	18.22	50.11
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 Sawer (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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	33.22	18.90	52.12

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	30.42	17.58	48.00
546	Fiber Optic Cable Equipment.	24.39	15.45	39.84
547	Work Performed on the Great Lakes Including Diver; Wet Tender or Hydraulic Dredge Engineer.	36.20	18.81	55.01
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.	36.20	18.81	55.01
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.	26.80	18.52	45.32
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.	26.80	18.52	45.32

HEAVY EQUIPMENT OPERATORS
ASPHALT PAVEMENT OR OTHER WORK

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	38.06	18.10	56.16

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14. 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).	33.72	18.90	52.62
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.	31.52	17.50	49.02

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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 Sawer (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. Future Increase(s): Add $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
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 $2/hr on 6/1/12; Add $2/hr on 6/1/13; Add $1.75/hr on 6/1/14.	32.67	18.55	51.22
556	Fiber Optic Cable Equipment.	24.39	15.45	39.84

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

Fringe Benefits Must Be Paid On All Hours Worked

CODE	TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
101	Acoustic Ceiling Tile Installer	27.00	1.16	28.16
102	Boilermaker	31.09	21.87	52.96
103	Bricklayer, Blocklayer or Stonemason	26.22	13.80	40.02
104	Cabinet Installer	26.00	2.33	28.33
105	Carpenter	31.68	7.03	38.71
106	Carpet Layer or Soft Floor Coverer	21.40	6.01	27.41
107	Cement Finisher	28.00	10.10	38.10
108	Drywall Taper or Finisher Future Increase(s): Add $2.20/hr on 6/1/2012	28.97	17.74	46.71
109	Electrician	31.10	6.01	37.11
110	Elevator Constructor	43.79	25.48	69.27
111	Fence Erector	17.64	4.66	22.30
112	Fire Sprinkler Fitter	36.39	16.97	53.36
113	Glazier	36.23	8.04	44.27
114	Heat or Frost Insulator	29.04	19.73	48.77
115	Insulator (Batt or Blown)	11.00	2.51	13.51
116	Ironworker	23.05	4.06	27.11
117	Lather	28.15	15.14	43.29
119	Marble Finisher	31.16	16.27	47.43
120	Marble Mason	35.53	15.92	51.45
121	Metal Building Erector	15.19	2.00	17.19
123	Overhead Door Installer	23.00	8.00	31.00
124	Painter	23.00	2.81	25.81

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
125	Pavement Marking Operator	26.00	0.00	26.00
129	Plasterer	30.36	7.15	37.51
130	Plumber	37.42	17.92	55.34
132	Refrigeration Mechanic	25.00	0.51	25.51
133	Roofer or Waterproofer Future Increase(s): Add $.50/hr. effective 06/01/2012	29.40	15.05	44.45
134	Sheet Metal Worker	28.15	15.14	43.29
135	Steamfitter	32.59	11.05	43.64
137	Teledata Technician or Installer	19.23	5.32	24.55
138	Temperature Control Installer	22.00	2.64	24.64
139	Terrazzo Finisher	18.00	5.35	23.35
140	Terrazzo Mechanic	31.16	16.27	47.43
141	Tile Finisher	23.96	15.50	39.46
142	Tile Setter	27.00	1.91	28.91
143	Tuckpointer, Caulker or Cleaner	32.50	1.62	34.12
146	Well Driller or Pump Installer	27.60	0.00	27.60
147	Siding Installer	16.00	0.00	16.00

TRUCK DRIVERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
201	Single Axle or Two Axle	16.25	2.25	18.50
203	Three or More Axle	17.00	7.63	24.63
205	Pavement Marking Vehicle	19.25	10.84	30.09
207	Truck Mechanic	19.00	1.75	20.75

LABORERS

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
301	General Laborer	17.50	6.16	23.66
302	Asbestos Abatement Worker	17.00	2.21	19.21
303	Landscaper	11.00	2.07	13.07
311	Fiber Optic Laborer (Outside, Other Than Concrete Encased)	17.09	14.40	31.49

HEAVY EQUIPMENT OPERATORS RESIDENTIAL OR AGRICULTURAL CONSTRUCTION

CODE	Fringe Benefits Must Be Paid On All Hours Worked TRADE OR OCCUPATION	HOURLY BASIC RATE OF PAY $	HOURLY FRINGE BENEFITS $	TOTAL $
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.	32.56	10.76	43.32
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.	17.40	0.44	17.84

********** END OF RATES **********

SECTION 00850: DRAWING SCHEDULE

The following listed drawings accompany and form a part of the project contract documents along with this project manual and generally illustrate the nature of the work.

INDEX OF DRAWINGS:

C-1 Title Sheet, Site Location Plan, Contents
A100 Existing Antennas and Parapet/Tank Removal Plan
A200 New Antennas and Parapet/Tank Repair Plan

S100 Water Tank Roof Plan – Antenna Supports and Details
S200 Water Tank Parapet Walls and Roof Restoration Plan and Details
S201 Water Tank Parapet Wall Details and Roof Restoration Details
S300 Concrete Ledge Restoration
S400 Concrete Wall Restoration

SECTION 01010: SUMMARY OF WORK:

1. SCOPE:

A. Index:
1. Scope
2. Project Description
3. Work by Others
4. Scheduling of Work

2. PROJECT DESCRIPTION:

A. In general, the project includes exterior work consisting of installation of Milwaukee Police Department supplied antennas and cabling; installation of lightning protection; removal of existing antennas, cabling and supports; repair of holes in catwalk where cabling is removed; repair of holes in water tank; concrete repair of parapet wall; repair of concrete ledges; investigation of concrete at walls, sealant work, and application of penetrating water repellant in repaired and adjacent areas.
Alternate bids include cleaning, and repair of existing steel in upper catwalk; application of fluid membrane roofing at the upper catwalk; removal and replacement of the existing roof hatch in the upper catwalk; and removal and replacement of damaged concrete on the exterior walls as shown on sheet S400.

B. The City will occupy the site during construction. The contractor is required to coordinate all construction with the City or agent to minimize impact to City operations and to ensure the safety of City employees and property. Coordination shall include the placement of field offices, public protection canopies, construction site fencing, scaffolding, interruption of utility service, demolition of existing building exterior concrete and antennas, delivery and storage of materials, installation of new antennas and accessories, and repair of building facade.

C. It is understood that the submittal of a proposal shall include furnishing all labor, materials, equipment, and incidentals necessary for completion of the work required, including that which may not be directly shown on the drawings or in the specifications, but are necessary for proper operation and approval.

D. Examine Documents and Visit Site:

1. Before submitting a bid proposal, bidders should carefully examine the drawings and specifications; visit the site of work; fully inform themselves as to all existing conditions and limitations including those of labor; and shall include in the bid proposal a sum sufficient to cover the cost of all items contemplated by the construction documents.

2. Each sub-bidder further represents that he has inspected the site of the proposed work to ascertain any obstacles that might be encountered and other matters and conditions relevant to this work.

3. The nature of the work required demands thorough review of all drawings and the project manual, and diligent and careful site inspection by all prospective sub-bidders as a means of determining the extent of work and conditions under which the work is to be performed.

4. Additional charges will not be as considered for work which, prior to bidding, could reasonably be inferred as appropriate by examination of the drawings and specifications, visiting the site, and closely reviewing the work as indicated above. No representations as to subsurface conditions are made.

E. The following outline is intended to serve as a general guide only and not as a complete listing of work, operations, or materials. Consult the Table of Contents for complete listing of items included.

1. Installation of new antenna ring, access entries and rubber cable boots

2. Installation of new antennas and cabling

3. Removal and disposal of existing antennas and cabling, and existing access plates and boots

4. Epoxy injection repair of cracks in concrete parapet walls

5. Repair of structural steel in catwalk where existing access plates and boots were removed.

6. Repair of holes on water tank

7. Installation of antenna lightning protection systems

8. Concrete ledge repair

9. Caulking and sealant installation

10. Water resistant coating application

3. SEQUENCE OF WORK

A. Repair holes in water tank; install new antenna ring, cable plates.

B. Install new antennas and cabling, sealant.

C. Remove existing antennas, attachments, brackets and cabling and metal coping.

D. Repair catwalk where access plates, etc. were removed. Clean debris from catwalk.

E. Repair parapet concrete

F. Repair concrete ledges

G. Apply water repellant coating on parapet and ledges

4. WORK BY OTHERS:

A. New antennas and cabling to be supplied by Milwaukee Police Department

B. Any building electrical, data or telephone work by City of Milwaukee.

5. SCHEDULING OF WORK:

A. A preconstruction conference will be held prior to the start of work.

B. All work unless otherwise specifically approved or noted, is to be done during normal working hours.

C. Contractor must notify the City 48 hours in advance before starting work.

C. The contractor shall sign in and identify all personnel working at the site on a daily basis with the supervisor in charge at the site. All personnel leaving the site will sign out prior to departure.

D. Shut downs of existing equipment and connections to existing equipment must be arranged in advance with the Project Inspector from Facilities Development and Management. Power outages must be scheduled for Saturdays.

E. Dispose of all removed materials in legal manner.

F. The contractor shall provide a construction schedule which includes all phases of construction. The contractor shall provide that complete schedule at the Pre-Construction Meeting arranged by the City.

H. Project Total working days includes submittals and submittal approval, acquisition and preparation of materials, and work off-site.

SECTION 01210: PROJECT MEETINGS

1. SCOPE:

A. Index:

1. Scope
2. Pre-Construction Meeting
3. Progress Meetings

2. PRE-CONSTRUCTION MEETING:

A. Soon after the award of the contract and prior to the start of construction, the contractor shall attend a pre-construction conference with representatives of the City.

B. The contractor shall have at the meeting responsible representatives from subcontractors who are to perform major work on the project.

C. The purpose of the meeting is to discuss in detail the plans and specifications. The discussion shall include:

1. Schedule
2. Equipment/Delivery Dates
3. Material Storage
4. Inspection Requirements
5. Protection Procedures for the structure, adjacent facilities, environment, and personnel.
6. Hours of Work

D. The contractor shall submit the construction schedule to the architect/engineer at this meeting and a listing of subcontractors and their work. The contractor shall describe, in detail, when each portion of the work is expected to be accomplished. The subcontractors shall participate in the discussion. The architect/engineer will serve to interpret the contract documents should such questions arise.

E. Any other questions that the contractor or his subcontractors have about the work or its scheduling shall be raised at these meetings.

F. Requirements for contract administration and construction operations will be defined for participants.

G. The architect/engineer will determine time, date, and place of the meeting.

3. PROGRESS MEETINGS:

A. Bi-weekly meetings will be held for the purpose of coordinating and expediting the work.

B. Attendance at project meetings by the contractor is mandatory. These meetings shall also be attended by representatives of each subcontractor who is either working at the site or is affected by work being done at the site. The contractor shall submit an updated construction schedule at these meetings and a short narrative should be written, describing the cause of any delays and intended action to remedy these delays.

C. Contractors shall give a verbal report of progress on the project, discuss the work schedule for the coming period, and present all conflicts, discrepancies or other difficulties for resolution.

SECTION 01300: SUBMITTALS/PERMITS

1. SCOPE:

   A. Index:

      1. Scope
      2. Submittals
      3. Permits
      4. Inspection

2. SUBMITTALS:

   A. Comply with the requirements of the General Conditions and as follows:

      1. Forward Submittals not more than 20 calendar days after the Notice to Proceed date. No work, as indicated on any shop drawing, samples, hardware list, etc., shall be started until those submittals have been reviewed and work authorized.

      2. All submittals must be thoroughly reviewed by the prime contractor for conformance to contract documents, prior to submission to the City, or its agents, for review. Shop drawings and catalog information shall be stamped "Reviewed By" and signed by the contractor's reviewer. The prime contractor shall review all subcontractor submittals prior to submittal to the City for compliance with contract documents and to coordinate all work.

      3. Include with each submittal a transmittal letter signed and dated by the prime contractor containing the following:

         a. Name of Contractor
         b. Name of Project
         c. List of Submittals
         d. Name of Manufacturer or Supplier
         e. Additional information as required for the items being provided.

   B. Shop Drawings, Catalog Information, Calculations, and Samples:

      1. Shop Drawings: Submit four blue/black line print review. The City will notify the contractor in writing and return one copy marked "REVIEWED - NO EXCEPTIONS TAKEN" with minor or no notations. The City will also notify the contractor in writing and return one copy, along with comments, when the drawings are marked either "REJECTED" or "REVISE AND RESUBMIT". For those shop drawings, the contractor will be responsible for resubmitting a new print.

      2. Catalog Information and Calculations: Submit four copies for City's record and additional numbers of copies required for the contractor's purpose. The City will notify the contractor in writing and return the contractor's copies, with or without notation, marked either "REVIEWED - NO EXCEPTIONS TAKEN", "REVISE AND RESUBMIT", OR "REJECTED". Catalog information or calculations marked "REVISE AND RESUBMIT" or "REJECTED" must be resubmitted in the same quantities as originally required.

REV 7/09

3. Samples: Submit two samples of requested materials for the City's records and additional samples, if desired, to be returned to the contractor. The City will notify the contractor in writing, whether the samples are approved or rejected. If they are rejected, new samples must be resubmitted as originally required.

4. Corrections or comments made on the submittals during the review do not relieve the contractor from compliance with requirements of the contract documents. The check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. Contractors are responsible for conforming and correlating all quantities and dimensions; selecting fabrication processes and techniques of construction; coordinating their work with that of all other trades; and performing their work in a safe manner.

C. "Or Equal": Whenever the words "or equal" or similar term is used, it shall mean as determined by the Commissioner of Public Works or agent. All drawings, data and bulletins necessary to make an "or equal" determination shall be submitted to the Facilities Manager of FACILITIES DEVELOPMENT AND MANAGEMENT SECTION. Such review shall apply to design only and shall in no way relieve the contractor from the responsibilities as outlined in Item 2B above. Evaluation of "or equal" products will be made at the time of shop drawing submission. Any change required in design and coordination between all contractors, subcontractors, or trades due to the use of "or equal" materials shall become the contractor's responsibility. Any costs for detailed engineering reviews and/or any costs to incorporate "or equal" products will be borne by the contractor.

3. PERMITS:

A. The City of Milwaukee will provide the general construction and occupancy permits.

B. Contractors shall obtain, from the City of Milwaukee Department of City Development and/or other government or private agencies, all special permits as may be necessary in their work.

C. Contractors shall obtain all permits to occupy or work in the public way as may be necessary for their work.

D. Contractors shall notify the City and/or appropriate utilities when making utility connections as part of the project.

4. INSPECTION:

REV 1/10

A. FACILITIES DEVELOPMENT AND MANAGEMENT SECTION will provide daily inspection to verify compliance with contract documents, identify contractors and crews on the job, verify compliance with contract conditions (EBE, residency, wage requirements), and record job progress and conditions.

REV 1/04

B. Contractors shall arrange with the Department of Neighborhood Services/Construction Trades Division and permit issuing agencies for all code compliance inspections as required by all permits including, but not limited to, the general building and all special permits issued by that agency.

D. Contractors shall arrange with the appropriate City agency for compliance inspections, as required, for all permits including, but not limited to, curb and pavement cuts and patches, and public way occupancy and utility connections.

REV 7/99

SECTION 01500: JOB SITE UTILITIES, FACILITIES, AND SECURITY

1. SCOPE:

A. Index:

1. Scope
2. Building Security
3 Temporary or Trial Usage
4. Occupancy During Construction
5. Temporary Hoists, Lifts
6. Scaffolding
7. Electrical Power
8. Water
9. Temporary Toilet Facilities
10. Site Security
11. Parking

1. Scope:

The following building security policy and procedure statement has been provided in this project manual for bid consideration and shall be distributed at the Pre-Construction Meeting. All City agents/officials responsible for engaging contractors, all contractors, and all subcontractors shall be held responsible for following the procedures.

2. BUILDING SECURITY:

A. General:

The Downtown Complex is open to the public from 8:00 AM until 4:45 PM, Monday through Friday, excluding holidays. Since most contracted work takes place outside normal business hours, it is essential that contractors and their City agents understand and abide by security policy.

Outlying buildings are not generally open to the public. Contracted work in these buildings can take place at any time. It is essential that contractors and their City agents understand and abide by security policy.

B. Police Access (General):

1. Access to Milwaukee Police Department facilities requires the contractor to meet the access procedures described below.

2. The Police Department requires that all contractors, vendors, visitors or other who intend to do business at any Police Department site must have a background check performed by the Milwaukee Police Department **PRIOR** to any access.

3. All contractors' staff requiring access to the site, including any subcontractors, suppliers or vendors, will be required to submit their full name (including full middle name) and birth date to allow the Department to perform the necessary background check. The contractor shall provide a staff list two weeks before work begins. At this time, the contractor shall provide a brief outline of the work, project schedule, and company contact information (company name, contact name and title, phone number and address).

4. To add staff during the course of the project, provide the same information as above and allow 48 hours for a response.

5. The Contractor will be notified if the worker does not pass the background check.

6. Sign in and sign out will be required at all Milwaukee Police Department facilities.

C. City Agents/Officials:

1. Any City agents/officials who commission outside contractors to work in any of the facilities managed by FACILITIES DEVELOPMENT AND MANAGEMENT SECTION shall provide the following information no less than twenty-four (24) hours in advance of the work:

   a. The names of any contract or subcontract employees who will be present in the facilities (for the purpose of designing badges appropriate to their work area):
   Green – Zeidler Municipal Building, 841 North Broadway
   Red – City Hall, 200 East Wells Street
   Yellow – 809 North Broadway
   Gold – Any outlying buildings

   These names must be listed on a sign-in sheet available in the Zeidler Municipal Building, Room 602 (FACILITIES DEVELOPMENT AND MANAGEMENT SECTION support staff – Extension 8222). City agents/officials shall be responsible to ensure the sheet and badges are transported to the appropriate location where the work is to be completed (in the Downtown Complex it would go to the City Hall Information Center, for outlying buildings to the person responsible for controlling access in the facility) the day before work is to begin.

   b. A list of keys and/or access cards required for access only to the areas necessary for work involved in the project. The keys and card will be received from the Security Manager or his designee and signed out to the City agents/officials responsible for the contracted work. The City employee will take the keys and/or access cards to the City Hall Information Center or the person responsible for controlling access in the outlying building where they shall be logged under the name of the contractor's company. When a project is complete, the City agents/officials must retrieve the keys/cards and return them to FACILITIES DEVELOPMENT AND MANAGEMENT SECTION support staff in Room 602 of the Zeidler Municipal Building.

c. The City agents/officials are responsible for communicating the security policy and procedures to contractors. The City agents/officials shall act as liaison for all communication between FACILITIES DEVELOPMENT AND MANAGEMENT SECTION and the contractor.

D. Contractors:

1. Contractors shall abide by City security policy and procedures at all times during the scope of their participation in a project. Failure to comply will result in the contracted employee being escorted from the premises and the resulting lost time and expense shall be deducted from the contractor's invoice or penalties of $50.00 per occurrence as determined by the contracting City agent/official.

a. All access should be provided in advance through the City agent/official. Contractors shall enter and exit only through those doors designated by City agents/officials (the Market Street entrance to City Hall and the doors established by the person responsible for access at outlying buildings). All other exterior doors are locked and alarmed and are not to be used as delivery points unless the City agent/official has been provided 24 hour notification to provide additional security coverage at that point while the delivery is in progress.

b. All of the contractor's employees and all of the employees of any of his subcontractors shall wear at all times while on the site, in a clearly visible location, an identification card. The identification card is to have a minimum 1" x 1" color photo of the head and shoulders. The photo is to have been taken no more than one year previously. The card is to be laminated with clear plastic and is to contain the company name, employee's name, and the employee's signature, and is to be furnished by the contractor or respective subcontractor.

c. Effective October 1, 2004 – City of Milwaukee Policy Change

The following policy has been established to maintain control of City Property and to ensure the physical protection of the City Hall Complex.

Anyone signing out access cards and/or keys from the Information Center will be following the steps below:

1) Sign in on the sheet assigned to the project you are working on and pull that sheet and provide it to the Operator noting that you will need to sign out City property to access the building.

2) Provide the Operator your driver's license as collateral for the return of City property.

3) Sign out the property in the sign out book as per current policy.

4) The Operator will file your driver's license until such time as you sign in and return the City property at which time your license will be returned.

5) Sign out at the end of your workday on the sign out sheet.

6) Under NO circumstances will keys or cards be disbursed without the user signing for the property and providing the City Hall Operator their driver's license as collateral.

7) In the event that keys or cards are not returned daily the contractor in question will have a deduct (security violation) **$50.00 penalty** for each occurrence, as per the contract. Individuals who loose or fail to return keys will be responsible for the cost of re-keying to the City.

8) Contractors shall not ask custodians or mechanics to unlock doors. All access should be provided in advance through the City agent/official. In the rare case where access is not provided, the City Hall Operator may be contacted to assist in providing access. The contractor shall cooperate with security personnel at all times. The contractor should be prepared to allow searches of equipment when leaving, and should remain only in the areas designated on the sign-in sheets.

e. If the contractor requires use of the loading dock in Upper Parking, 24 hour advance notice shall be given to the City agent/official to make arrangements to provide additional security coverage while the delivery is in progress. The contractor or subcontractor shall meet the delivery driver and take delivery at that point. At no time shall a driver be allowed in the facilities without following the access procedure stated above.

f. If after normal business hours work is required in the outlying buildings, all subcontractors and trades will arrange appropriate security measures and lock-up procedures with the contractor in writing. Any work completed at night shall be left "open" for City inspection of the work. The contractor shall notify the City agent/official 24 hours in advance of after-hours work in writing, indicating the type of work to be done and the security measures to be taken by the contractor.

g. The contractor shall provide plywood door and window closures during construction to secure the structure from weather and damage from vandalism. The contractor is responsible to maintain the security of the space where they are working during construction.

h. If proper notification is not provided to the contractor, the subcontractor or trades shall be liable for any subsequent damage/vandalism/inspection cost, etc., due to lack of security/inspection coordination.

i. Use of City materials is strictly prohibited unless pre-arranged through the City employee contact.

j. At no time shall any interior doors that control access or exterior doors be propped open.

3. TEMPORARY OR TRIAL USAGE:

The owner shall have the right to make temporary or trial usage of any mechanical device, machinery, apparatus, equipment, work, material or construction supplied under contract before final completion or acceptance of the work, and the same shall not be construed as evidence of acceptance of the work by the owner.

4. OCCUPANCY DURING CONSTRUCTION:

The owner will occupy the premises while work is in progress. Contractor is to coordinate his work as to not interfere with the owner's operation or compromise building security.

5. TEMPORARY HOISTS, LIFTS

Contractors and subcontractors requiring hoists or lifts shall provide their own and remove upon completion of work.

6. SCAFFOLDING, SWING STAGES, AND LIFTS:

General Contractor shall provide protective sidewalk scaffolding and any additional measures as required to protect the public and allow safe use of this entrance into the facility during the entire construction period.

All scaffolding, swing stages and lifts as required to perform work defined in this contract document shall be provided and maintained by the General Contractor and shall be removed when no longer needed. The General Contractor is solely responsible for the design, safety and security of any scaffolding erected under this contract for this project. All scaffolding, swing stages and lifts shall be available with operators for access to the project for the Project Engineer, City Liaison and City Inspectors.

Exterior scaffolding access (up & down) shall be provided. Access through to the facility will be strictly limited. Adequate security must be provided by the General Contractor to limit the opportunity of unauthorized access of scaffolding.

Submittals for the scaffolding and egress protection shall be provided and reviewed before proceeding with erection. Scaffolding and egress protection submittals shall be stamped by a professional engineer. The scaffolding engineer shall design any foundations or anchoring points as required. The scaffolding system shall be properly grounded.

All anchors and other attachments into building shall be limited. All anchors and attachment shall be clearly indicated on submittals. All costs for scaffolding including installation of anchoring, foundation, erection and patching of all anchor and attachment points at the conclusion of the project shall be

included in the base bid. At the completion of the project, the Contractor is to patch all anchor and attachment points. Patching of all anchor or attachment points shall match existing façade materials. On site patching sample shall be provided and approved before proceeding with all patch work. Any damage to sidewalks, pavement or landscaped areas shall be restored to existing pre-construction conditions after the removal of the scaffolding.

Contractor is to verify that the parking and grass areas that surround the building are structurally suitable for placement of scaffolding, lifts or other equipment or materials prior to placement thereof. Verify by investigation and record plans the location of pervious pavement, water wells, or other underground structures not capable of supporting scaffolding, lifts, equipment or materials, and avoid placement of equipment and/or materials over these areas.

7. ELECTRICAL POWER:

Contractor may use existing outlets for power. Contractor to verify power available at site. Contractor is to supply his own lines. OSHA regulations require that employers use either ground fault circuit interrupters or an assured equipment grounding conductor program in addition to any other regulations for equipment grounding conductors. The cost of the current used will be paid for by the City.

8. WATER:

Hose bibs are available as shown on the drawings. Contractor is to verify that location of existing hose bib is suitable for his work, or provide his own source of water. Contractor is to supply his own hoses. Contractor's hose shall be leak free and contractor is to regulate the flow to limit it to project-related use. The cost of water at the building shall be paid for by the City.

9. TEMPORARY TOILET FACILITIES:

The contractor is responsible for providing their own exterior toilet facilities during construction.

10. SITE SECURITY:

Contractor shall secure all doors and gates prior to leaving site.

11. PARKING:

Parking is available off site, on the streets adjacent to the project.

SECTION 01505: CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SCOPE:

A. This section specifies requirements for salvaging, recycling and disposing of construction waste for purposes of protecting the environment and reducing project cost.

Requirements include the following:

1. Developing a Construction Waste Management Plan including waste management goals and provisions for waste reduction and recycling.
2. Implementing, monitoring and documenting the waste management plan.
3. Incorporating special programs.
4. Evaluating construction waste management.

1.2 RELATED DOCUMENTS AND SECTIONS:

A. Drawings and general provisions of the Contract, including General Conditions and other Division 1 Specification Sections, apply to this Section.

B. Related documents include the following

1. Section 01010 “Summary of Work”
2. Section 01300 “Submittal & Permits”
3. Section 01500 “Utilities, Facilities, and Security” for environmental-protection measures during construction.

1.3 PRECONSTRUCTION MEETING:

A. After award of Contract and prior to the commencement of the Work, schedule and conduct a meeting with the Owner and Architect to discuss the proposed Construction Waste Management Plan and to develop a mutual understanding regarding details of environmental protection.

1.4 CONSTRUCTION WASTE MANAGEMENT PLAN:

A. Construction Waste Management Plan

1. The purpose of the Construction Waste Management Plan is to identify construction waste reduction goals, identify targeted materials, and explain specific waste reduction actions to be taken, by whom, and when.
2. The Contractor shall develop a Construction Waste Management Plan for this Project within 15 working days after Contract award or prior to any waste removal. The Owner and the Architect will furnish the Contractor with information that will assist in the development of the Construction Waste Management Plan. Submit the Construction Waste Management Plan (include document/report form) to the Architect for approval prior to implementing the Plan.

B. The Plan, which should be entered into and generated by WasteCapTRACE, shall include the following:

1. **A list of the waste materials expected to be generated from the Project debris.**
2. **A list of each material proposed to be salvaged, reused, recycled and discarded. Identify applicable markets for reuse and recycling. At a minimum, all materials required by state law to be recycled shall be recycled (e.g., cardboard, cans, bottles, office paper, fluorescent tubes, refrigerants, mercury, etc.) and scrap metal shall be recycled.**
3. **Separation and materials handling procedures: Description of how waste materials identified above will be separated, cleaned (if necessary) and protected from contamination.**
4. **Educational and Motivational Procedures: Meetings to be held and other proposed methods for educating construction personnel regarding waste reduction and recycling. Construction waste management requirements should be discussed at least monthly at project site meetings.**
5. **Waste Auditing Procedures: Methods of monitoring and enforcing the Plan.**
6. **Documentation Procedures: Methods of documenting materials leaving the Project site as waste, for the reuse or recycling to allow Summary of Waste Progress Reports to be submitted with Applications for Payment.**
7. **The Lead contractor shall distribute copies of the Construction Waste Management Plan to DPW's Project manager.**

C. Progress Documentation: Document solid waste disposal and diversion. Include the date of removal, type of waste removed, quantity by weight and volume, final destination and use (recycled, reused or landfilled), and net cost or income.

1. Document on the Form acceptable to the Owner and Architect.
2. With each Application for Payment, submit updated documentation identifying solid waste disposal and diversion.
3. With each Application for Payment, submit manifests, weight tickets, receipts and invoices identifying the Project and construction waste material.

D. Record Submittals: Submit the following:

1. Summary of solid waste disposal and diversion. Submit on form acceptable to the Owner and Architect.
2. End-of-Project recycling rates and landfill rates demonstrating the percentage of construction waste that was recycled or reused.

1.5 WASTE MANAGEMENT GOALS:

A. Develop Construction Waste Management Plan that results in end-of-Project rates for the reuse/recycling of **50%** percent by weight or volume of total waste generated by the Project. Record the total construction waste reduction goal on the Construction Waste Management Plan Form.

B. Reduce: The Project shall generate the least amount of waste and methods shall be used that minimize waste due to error, poor planning, breakage, mishandling, contamination, or similar factors. Promote the resourceful use of materials to the greatest extent possible.

C. Recycle: As many of the waste materials not able to be eliminated in the first place or salvaged for reuse shall be recycled. Waste disposal in landfills shall be minimized to greatest extent possible.

1.6 MATERIALS HANDLING AND SORTING:

A. Handling:

1. Materials that are contaminated prior to placing in collection containers shall be properly cleaned. Deliver materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling processes.
2. Cover materials with tarps and keep truckloads level so as to prevent spillage.
3. Arrange for collection by or delivery to the appropriate recycling or reuse facility.
4. Hazardous Waste and Hazardous Materials: Handle in accordance with applicable regulations. If encountered, such waste and materials shall be abated under separate contract.

B. The following sorting methods are acceptable:

1. Sorting recyclable materials at the Project site and transporting them to recycling markets directly from the Project site.
2. Employing haulers who make use of a materials-recovery facility or a transfer station where recyclable materials are sorted from the waste and recycled before disposing of the remainder. If using a hauler or recycling facility to sort out recyclables, verify that the hauler sorts out all construction waste loads and is not limited to those that are not acceptable at the landfill. Also, verify that the hauler or recycling facility recycles at least three types of materials.

1.7 WASTE MANAGEMENT PLAN IMPLEMENTATION:

A. The Contractor shall designate a party (or parties) who shall be responsible for instructing construction personnel and overseeing and documenting results of the Construction Waste Management Plan.

B. Distribution: The Contractor shall distribute copies of the Construction Waste Management Plan to the Project Foreman, each Subcontractor, the Owner, and the Architect

C. Instruction: The Contractor shall provide on-site instruction regarding appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all construction personnel at the appropriate phases of the Project.

D. Separation Facilities: The Contractor shall lay out and identify a specific area on the Project site to facilitate separation of materials for recycling, salvage, reuse, and return. Recycling and waste bin areas shall be kept neat and clean, and clearly marked to avoid contamination of materials. Materials for recycling include concrete, non-fibrous wallboard, paper, clean corrugated cardboard (no pizza boxes), non-treated wood, metals (steel, aluminum and copper), and glass bottles (no windows). Provide separate containers, preferably near the job trailer, with smaller containers located at convenient places throughout the job site. Empty smaller containers into larger containers every night or when full. Cover outdoor containers to keep out rain, snow, and wind-driven debris. Lock containers whenever site is not in use to prevent illegal dumping.

E. Hazardous Waste: Hazardous waste shall be separated, stored, and disposed of according to applicable regulations.

F. Application for Payments: With each Application for Payment, the Contractor shall submit a Summary of Waste generated by the Project. **This reporting shall take place using WasteCapTRACE, an online documentation system. There is a fee, to be included in the bid, of two cents per square foot of gross construction for use of WasteCapTRACE.** Failure to submit this information shall render the Application for Payment void, thereby delaying the Progress Payment.

G. The Summary of Waste shall contain the following information:

1. The amount (in tons and/or cubic yards) of material landfilled from the Project, the identity of the landfill, and the related disposal cost. Include corresponding manifests, weight tickets, receipts, and invoices.
2. For each material recycled from the Project, the amount (in tons and/or cubic yards), the date removed from the Project site, the receiving party, the transportation cost, the amount of any money paid or received for the recycled or salvaged material, and the net total cost or savings of recycling. Include corresponding manifests, weight tickets, receipts, and invoices.
3. **Final Payment: Prior to application for Final Payment, the Lead Contractor shall submit a Final Summary of Waste: reuse and recycling results for all prime and subcontractors, including the quantity of each material recycled, reused, or salvaged, the receiving party and the applicable diversion rates. The final report will be generated by WasteCapTRACE based on information entered throughout the project by the Lead Contractor.**

H. Implementing the Plan: The Contractor shall designate a party (or parties) responsible for implementing the Construction Waste Management Plan. This party (or parties) shall explain to Contractor's and Subcontractor's construction personnel, the Plan's goals and methods for achieving those goals.

1.8 SPECIAL PROGRAMS:

A. The Contractor shall be responsible for final implementation of programs involving tax credits, rebates, or similar incentives related to recycling, if applicable to the Project. Revenues or other savings obtained for recycling or returns shall accrue to the Contractor.

B. The Contractor shall be responsible for obtaining information packets related to the special programs prior to commencing Work.

C. The Contractor shall document work methods, recycled materials, etc., as required for the tax credits, rebates, or other savings described above.

END OF SECTION

SECTION 01600: MATERIALS AND EQUIPMENT

1. SCOPE:

   A. Index:

      1. Scope
      2. Materials
      3. Equipment
      4. Hazardous Material Requirements
      5. Material Storage
      6. Protection
      7. Revisions

2. MATERIALS:

   A. Furnish materials of the type, qualities, and characteristics specified. The specification of a trade name and catalog number is intended to establish quality, type, character, and operating characteristics of the material required. Materials by other manufacturers of equal specifications will be accepted, excepting as may be specifically stated otherwise.

   B. Materials shall be delivered adequately protected, in merchantable condition, and in original unbroken packages if normally packaged. They shall be stored and handled so as to protect and maintain their merchantable condition.

   C. The Commissioner of Public Works or his representative shall have the right to reject material not in compliance with the project manual, as well as damaged material, and the contractor shall remove such material from the construction site when and as directed.

3. EQUIPMENT:

   A. Internal combustion engine and compressor shall be equipped with mufflers to reduce noise to a minimum and shall not be operated in enclosed areas without adequate ventilation.

   B. All materials and work procedures used shall be in accordance with all air pollution control regulations in effect at the work site.

4. HAZARDOUS MATERIAL REQUIREMENTS:

   A. The requirements set forth in the OSHA Hazard Communication Standard, 29CFR19101.1200, U.S. Environmental Protection Agency (EPA), and Wisconsin Department of Natural Resources in the Wisconsin Administrative Code NR600, shall be met by each on-site contractor.

      1. Material Safety Data Sheets (M.S.D.S.):

         a. All contractors, which may/may not include the City of Milwaukee, shall provide the M.S.D.S. for all hazardous chemicals to which any person may be exposed at the work site.

         b. A master list will be kept in the office of the Project Supervisor/Construction Manager and updated as materials are delivered.

2. Container Labeling:

Each container of hazardous material at the work site shall be clearly labeled with:

a.) Identity of the hazardous chemical(s).

b.) Appropriate hazard warning(s).

c.) Name and address of the manufacturer.

B. The City of Milwaukee reserves the right to stop the work of a contractor if compliance with OSHA regulations is inadequate. Work will not proceed until all applicable safety and health procedures are implemented by the contractor.

5. MATERIAL STORAGE:

A. The storage areas shall be kept in good order and free of all rubbish and debris.

B. Coordinate the delivery and storage of all materials and equipment with the FACILITIES DEVELOPMENT AND MANAGEMENT SECTION Project Inspector.

C. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

D. Store and protect products in accordance with manufacturer's instructions.

E. Store with seals and labels intact and legible.

F. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

G. For exterior storage of fabricated products, place on sloped supports above ground.

H. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

6. PROTECTION:

A. The premises and the work shall be adequately protected from damage from the commencement of work to the date of final acceptance.

B. All construction work and traffic shall remain within the construction area.

C. All damage shall be corrected or repaired by the contractor or contractors causing same at his or their own expense.

D. All open pipes, pipe threads, fittings, and insulation must be protected during construction.

7. REVISIONS:

The right is reserved to make modifications to a reasonable extent as building conditions may require, or as may be required to conform to code rulings, or manufacturer's standards without extra cost to the City.

SECTION 01700: CLEANING AND PROJECT CLOSE-OUT

1. SCOPE:

A. Index:

1. Scope
2. General
3. Safety Cleaning
4. Progress Cleaning
5. Disposal
6. Final Cleaning
7. Charges
8. Record Drawings
9. Operating Instructions & Maintenance Manuals
10. Guarantees

2. GENERAL:

Article 2.5.4 of the General Requirements of City of Milwaukee Department of Public Works shall be supplemented as specified hereinafter.

3. SAFETY CLEANING:

Safety cleaning: Each contractor is responsible for safety cleaning, which includes but is not limited to the following:

A. Keep work areas, driveways, parking areas, ramps, stairs, free of debris and scrap.

B. Form and scrap lumber shall have nails withdrawn or bent over and lumber shall be stacked or removed.

C. Remove spills of oil, grease, or other liquids immediately.

D. Hazardous material shall be handled in accordance with Section 01600. Each container of hazardous material at the work site shall be clearly labeled with:

a. Identity of the hazardous chemical(s)
b. Appropriate hazard warning(s).

4. PROGRESS CLEANING:

A. Prime Contractor and subcontractor shall remove his rubbish and debris from building site promptly upon its accumulation, and prior to the contractor's regular Friday general clean up. Contractor shall perform broom cleaning of all appropriate surfaces each Friday afternoon.

B. Combustible waste shall be stored in fire resistive containers and disposed of regularly.

C. Oily, flammable or hazardous wastes such as caustics, acids, harmful dusts, etc., shall be stored in appropriate covered containers.

D. All solvents and cleaners used on this project must be rated as containing low or no volatile organic compounds (VOC's).

5. DISPOSAL:

A. No burning of rubbish or debris will be allowed at site. No rubbish shall be thrown through opening or from heights without proper protection. Where dust will be generated or flying debris is likely to occur, provide dust tight chutes or other means to control dust.

B. Containers: Contractor shall provide mobile industrial type waste containers in the number and size required, placed at adequate locations to handle debris or provide other methods of disposing of debris.

C. Oil, flammable or hazardous wastes such as, but not limited to, caustics, acids, harmful dusts, etc., shall be placed in properly marked containers as necessary and disposed of at a site designed for such wastes.

6. FINAL CLEANING:

A. Immediately prior to substantial completion.

B. Contractors shall expedite or perform thorough cleaning, sweeping, washing and polishing of work to remove from work and equipment provided under his contract, all foreign matter, spots and soil, so as to put all such work and equipment, including finishes, in a complete and finished condition ready for acceptance and use intended.

C. The contractor is responsible for final sweeping and dusting not covered by other subcontractors. This general cleaning shall include all areas and floors of the building, including the site outside the building.

D. All solvents and cleaners used on this project must be rated as containing low or no volatile organic compounds (VOC's).

7. CHARGES:

A. If prime contractor does not remove rubbish or clean building as specified above, the owner reserves right to have work done by others at contractor's expense.

B. Employees or contracted services of the owner who are required to clean up any rubbish or to sweep any floors because prime contractor failed to do so will record all hours involved to complete such work. The cost incurred by the owner for this special cleaning and sweep-up work shall be charged against the contract price of the contractor as determined by owner.

8. RECORD DRAWINGS:

A. After the completion of work and prior to final payment, the mechanical and electrical contractors shall provide FACILITIES DEVELOPMENT AND MANAGEMENT SECTION with three (3) marked up sets of prints showing all changes or variations from contract drawings, and not specified on change order drawings theretofore issued. Contractors providing buried or concealed piping, conduit, or similar items shall locate such items by dimensions and elevations.

B. Other contractors shall provide one (1) marked up set of prints showing all changes or variations from contract drawings.

C. Drawings shall show complete layout of revised piping, equipment, etc., as actually installed.

9. OPERATING INSTRUCTIONS AND MAINTENANCE MANUALS:

A. The contractor shall, upon completion of all work, furnish the necessary skilled labor to instruct City personnel in the operation, adjustment, and maintenance of all equipment furnished.

B. At termination of work, the contractor shall submit maintenance and operating manuals presenting full details of care and maintenance and operation of mechanical and electrical equipment of every nature. See specific requirements in relevant sections as applicable.

C. The manual shall include manufacturer's instructions for maintenance and operation and shall be completely indexed, including the spare parts list. See specific requirements in relevant sections.

D. Submit three (3) final copies in hard bound cover to FACILITIES DEVELOPMENT AND MANAGEMENT SECTION.

E. The contractor shall allow for 3- 1 hour training sessions for City maintenance personnel on all equipment and controls installed under this contract.

10. GUARANTEES:

A. Each contractor shall guarantee to replace or repair promptly at his own expense, as directed by the Commissioner of Public Works or his agent, all workmanship or materials in which defects may develop within one (1) year from the date of final acceptance of his work. This guarantee includes all damage done to the City due to faulty equipment, poor installation or poor construction.

B. Guarantee periods other than the one year time period are indicated in specific specification sections.

SECTION 03 01 00
MAINTENANCE OF CONCRETE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
1. Concrete reinforcement repair.
2. Concrete surface repair.
3. Concrete crack repair.

B. Related Sections:
1. Applicable provisions of Division 1 shall govern all work of this Section.

C. Unit cost:
1. Provide unit prices as stated on Bid Form and described below.
   a. Unit Price A; Crack Repair
      - Unit of measurement: Per Linear ft
   b. Unit Price B, Partial Depth Concrete Repair
      - Provide Add/Deduct unit cost if actual replacement areas exceed those shown on construction documents.
      - Unit of measurement: Per sq. ft.
   c. Unit Price No. C; Full Depth Concrete Repair
      - Provide Add/Deduct unit cost if actual replacement areas exceed those shown on construction documents.
      - Unit of measurement: Per sq. ft.

1.2 REFERENCES

A. ASTM International:
1. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.
2. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
3. ASTM C33 - Standard Specification for Concrete Aggregates.
4. ASTM C94 - Standard Specification for Ready-Mixed Concrete.
5. ASTM C109/C109M - Standard Test Method for Compressive strength of Hydraulic Cement Mortars (Using 2-in. or (50 mm) Cube Specimens).
6. ASTM C150 - Standard Specification for Portland Cement.
7. ASTM C172 - Standard Practice for Sampling Freshly Mixed Concrete
8. ASTM C260 - Standard Specification for Air-Entraining Admixtures for Concrete.

9. ASTM C293 - Standard Test Method for Flexural Strength of Concrete (Using Simple Beam With Center-Point Loading).
10. ASTM C404 - Standard Specification for Aggregates for Masonry Grout.
11. ASTM C494 - Standard Specification for Chemical Admixtures for Concrete
12. ASTM A615 - Deformed and Plain Billet Steel for Concrete Reinforcement
13. ASTM C882 - Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With Concrete By Slant Shear.
14. ASTM C1042 - Standard Test Method for Bond Strength of Latex Systems Used With Concrete By Slant Shear.
15. ASTM D638 - Standard Test Method for Tensile Properties of Plastics.
16. ASTM D695 - Standard Test Method for Compressive Properties of Rigid Plastics.
17. ASTM A706/A706M - Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.
18. ASTM A775/A775M - Standard Specification for Epoxy-Coated Steel Reinforcing Bars.

B. American Concrete Institute
1. ACI 301 - Specifications of Structural Concrete for Buildings.

C. Concrete Reinforcing Steel Institute (CRSI)

D. 1. Manual of Practice.

E. American Welding Society:
1. AWS D1.4 - Structural Welding Code - Reinforcing Steel.

1.3 SUBMITTALS

A. Provide five copies of all submittals.

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

C. Design Data:
1. Submit concrete mix design for each concrete strength. Submit separate mix designs when admixtures are required for the following:
   a. Hot and cold weather concrete work.
   b. Air entrained concrete work.
2. Identify mix ingredients and proportions, including admixtures.

D. Samples: Submit two color samples for patches exposed to view in finished construction and required to match existing.

E. Manufacturer's Instructions: Submit mixing instructions.

F. Manufacturer's Certificate: Certify Products meet or exceed specified requirements.

1 1.4 CLOSEOUT SUBMITTALS

2 A. Division 1 – Contract Closeout: Closeout procedures.

3 B. Project Record Documents: Accurately record actual locations of structural reinforcement
4 repairs and type of repair.

5 1.5 QUALITY ASSURANCE

6 A. Perform welding work in accordance with AWS D1.4.

7 B. Perform Work in accordance with ACI 301.

8 C. Conform to ACI 305 when concreting during hot weather.

9 D. Conform to ACI 306.1 when concreting during cold weather.

10 1.6 QUALIFICATIONS

11 A. Manufacturer: Company specializing in manufacturing products specified in this section with
12 minimum five years documented experience.

13 B. Applicator: Company specializing in concrete repair with minimum five years documented
14 experience and approved by manufacturer.

15 1.7 MOCK-UP

16 A. Construct mockup panel three feet long by two feet wide, illustrating patching method, color
17 and texture of repair surface.

18 B. Prepare one mockup of each type of injection and patching procedure.

19 C. Locate where directed by Architect/Engineer.

20 D. Incorporate accepted mockup as part of Work.

21 1.8 DELIVERY, STORAGE, AND HANDLING

22 A. Division 1 - Product Requirements: Product storage and handling requirements.

23 B. Comply with instructions for storage, shelf life limitations, and handling.

24 **PART 2 PRODUCTS**

25 2.1 CONCRETE MATERIALS

26 A. Cement: ASTM C150, Type I - Normal.

27 B. Normal Weight Aggregates: ASTM C33.

1. Coarse Aggregate Maximum Size: 3/4 inches.

C. Water: ACI 318; potable, without deleterious amounts of chloride ions.

2.2 ADMIXTURES

A. Air Entrainment: ASTM C260.

B. Chemical: ASTM C494/C494M.
1. Type A - Water Reducing.
2. Type B - Retarding.
3. Type C - Accelerating.
4. Type D - Water Reducing and Retarding.
5. Type F - Water Reducing, High Range.
6. Type G - Water Reducing, High Range and Retarding.

C. Use of calcium chloride (CaCl) or chemical anti-freeze admixtures are not allowed.

2.3 ACCESSORIES

A. Bonding Agent: Polymer resin emulsion or Latex emulsion.

2.4 EPOXY ADHESIVE INJECTION MATERIALS

A. All cracks greater than or equal to 1/16" of width shall be filled with epoxy resin.

B. Manufacturers:
1. The Euclid Chemical Company; Dural 50 with Duralcrete Gel or Dural Fast Set Epoxy Gel.
2. Sika Corporation; Sikadur 35 Hi-Mod LV with Sikadur 31 Hi-Mod Gel or Sikadur 33.
3. BSAF; SCB Concresive 1380.

C. Epoxy Adhesive: Two-part epoxy adhesive containing 100 percent solids, meeting the following minimum characteristics:

Characteristic	Test Method	Results
Bond Strength	ASTM C882	2,700 psi
Tensile Strength	ASTM D638	6,600 psi
Elongation	ASTM D638	2 percent at 7 days 70 degrees F
Flexural Strength	ASTM D790	8,000 psi
Compressive Strength	ASTM D695	6,500 psi

2.5 CONCRETE REPAIR MORTAR – PARTIAL DEPTH REPAIRS

A. Manufacturers:
1. Sika Corporation, Sikarepair SHA with Latex R.

2. The Euclid Chemical Company, Verticoat.
3. BASF Building Systems, HBA Repair Mortar.
4. Substitutions not permitted unless approved by engineer.

B. Materials: Two-component, trowel-grade, polymer-modified cement-based repair mortar suitable for overhead concrete repairs in deep lifts.
1. Compressive Strength (ASTM C-109, 2" cubes)
   a. 1 day: 1700 psi
   b. 7 day: 3000 psi
   c. 28 day: 5000 psi
2. Bond Strength (ASTM C-882)
   a. 28 day: 1,250 psi
3. Flexural Strength (ASTM C-293)
4. Color; Gray

C. Extending Aggregate: Per mortar manufacturer's recommendations.

D. Calcium Chloride: Not permitted.

E. Bonding Agent: Per mortar manufactures recommendation and compatible with mortar.

F. Cleaning Agent: Use of acids including muriatic acid prohibited.

2.6 CONCRETE MIX – WALL OR LEDGE FULL DEPTH REPAIR

A. Select proportions for concrete in accordance with ACI 318 field experience.

B. Provide concrete to the following criteria:

1. Compressive Strength: 4000 psi @ 28 days.
2. Water-Cement Ratio: 0.45 Max.
3. Maximum Aggregate Size: ¾-inch
4. Air Entrained: 6 ½ percent, +/- 1.5%

2.7 REINFORCEMENT MATERIALS

A. Reinforcing Steel: ASTM A615, 60 ksi yield grade billet steel deformed bars.

B. Tie Wire: Minimum 16 gage annealed type.

2.8 COLD APPLIED ZINC RICH COATING

A. Cold applied coating: Containing a minimum of 85% of zinc by weight in the dried film.

2.9 MIXING CONCRETE REPAIR MORTAR

A. Mix concrete repair mortar per manufacturer's instructions.

B. Prepare concrete surface and apply scrub coat or primer as directed by manufacturer's installation requirements.

2.10 READY MIX CONCRETE

A. Mix and deliver concrete in accordance with ASTM C94/C94M.

2.11 SITE MIX CONCRETE

A. Mix concrete in accordance with ACI 318.

PART 3 EXECUTION

3.1 EXAMINATION

A. Verify surfaces are ready to receive work.

B. Beginning of installation means acceptance of existing surfaces and substrate.

3.2 PREPARATION

A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent. Remove laitance, coatings, and unsound materials. Prepare surfaces mechanically to give a surface profiles of a minimum of 1/8" and expose course aggregate.

B. Flush out cracks and voids in accordance with repair material manufacturers recommendations to remove laitance and dirt.

C. Provide temporary entry ports spaced to accomplish movement of fluids between ports; no deeper than depth of crack to be filled or port size diameter no greater than thickness of crack. Provide temporary seal at concrete surface to prevent leakage of adhesive.

D. Where concrete repair is less than full depth, saw cut edges of repair areas to minimum depth of ½ " to avoid featheredging and to provide square edge. Break out repair area to minimum depth of ½" up to sawn edge.

E. Remove oxidation, corrosion, and scale on exposed reinforcement steel per ICRI Technical Guideline No. 310.1 r-2008 "Guide to Surface Preparation for the Repair of Deteriorated Concrete Resulting from Reinforcing Steel Corrosion" (formerly No. 03730). Apply a zinc rich primer compatible with selected trowel applied patch mortar to exposed steel prior to proceeding with concrete repair.

3.3 REPAIR WORK

A. Repair exposed structural, shrinkage, and settlement cracks of concrete as indicated on Drawings by epoxy injection.

B. Repair spalling. Fill voids flush with surface and trowel to match adjacent surfaces.

3.4 INJECTION - EPOXY RESIN

A. Inject epoxy resin adhesive into prepared ports under pressure using equipment appropriate for particular application.

B. Begin injection at lower entry port and continue until adhesive appears in adjacent entry port. Continue from port to port until entire crack is filled.

C. Remove temporary seal and excess adhesive.

D. Clean surfaces adjacent to repair and blend finish.

3.5 PLACING OF CONCRETE REPAIR MORTAR

A. Apply concrete repair mortar by steel trowel in accordance with manufactures recommendations. Tamp into place filling voids at prepared spalled areas. Work mix into place.

B. Cure concrete repair mortar in accordance with manufacturer's recommendations.

C. Ensure substrate is Saturated Surface Dry (SSD) with no standing water.

D. Provide bond coat on existing surfaces per selected manufacturer's instructions to ensure sufficient bonding.

E. Place mortar while bond coat is still wet.

F. Where multiple lifts are required, score prior lift per selected manufacturer's installation instruction and provide a secure bond between lifts.

G. Finish concrete repair mortar to match surrounding concrete.

3.6 ADHESIVE ANCHOR INSTALLATION

A. Follow manufacturer's instructions for all installation sequences including whole diameter, cleaning of hole requirements, mixing and installation of adhesive, use of accessories, and curing requirements.

3.7 CONCRETE PLACEMENT

A. Prior to placing patches & topping, roughen substrate concrete surface and remove deleterious material.

B. Place required reinforcing and other items to be cast in.

C. Place concrete to required lines and levels. Do not exceed 12 ft in length and width.

3.8 CONCRETE FINISHING

A. Provide formed concrete surfaces to be left exposed with smooth rubbed finish.

B. Finish concrete floor surfaces in accordance with ACI 301.

C. Steel trowel surfaces which are to be exposed.

3.9 CURING AND PROTECTION

A. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.
   1. Protect concrete footings from freezing for minimum 5 days.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Cure concrete surfaces in accordance with ACI 318. Cure all concrete repair mortars in accordance with manufacturer's instructions.

3.10 FIELD QUALITY CONTROL

A. Perform field inspection and testing in accordance with ACI 318.

B. Provide free access to Work and cooperate with appointed firm.

C. Submit proposed mix design of each class of concrete to testing firm for review prior to commencement of Work.

D. Strength Test Samples:
   1. Sampling Procedures: ASTM C172.
   2. Cylinder Molding and Curing Procedures: ASTM C31/C31M, cylinder specimens, standard cured.
   3. Sample concrete and make one set of five cylinders for each class of concrete placed each day.
   4. Make one additional cylinder during cold weather concreting, and field cure.

E. Field Testing:
   1. Slump Test Method: ASTM C143/C143M.
   2. Air Content Test Method: ASTM C173/C173M.
   3. Temperature Test Method: ASTM C1064/C1064M.
   4. Measure slump and temperature for each compressive strength concrete sample.
   5. Measure air content in air entrained concrete for each compressive strength sample.

F. Cylinder Compressive Strength Testing:
   1. Test Method: ASTM C39/C39M.
   2. Test Acceptance: In accordance with ACI 318.
   3. Test one cylinder at 7 days.
   4. Test two cylinders at 28 days.

5. Retain two cylinders for 60 days for testing when requested by Architect/Engineer.
6. Dispose remaining cylinders when testing is not required.

3.11 PATCHING

A. Allow Architect/Engineer to inspect concrete surfaces immediately upon removal of forms.

B. Excessive honeycomb or embedded debris in concrete is not acceptable. Notify Architect/Engineer upon discovery.

3.12 DEFECTIVE CONCRETE

A. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

B. Repair or replacement of defective concrete will be determined by Architect/Engineer. Do not patch, fill, touch-up, repair, or replace exposed concrete except upon express direction of Architect/Engineer for each individual area.

END OF SECTION

SECTION 05 01 00 – MAINTENANCE OF METALS--Measuring Effects of Erosion and Corrosion (ALTERNATE 1)

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes measuring effects of erosion and corrosion on the entire catwalk and surrounding tank to a height of 7 feet, using a non-destructive ultrasonic measurement device.

B. Related Sections:
1. 05 01 50 Surface Preparation of Steel and Concrete for Coating

C. Follow sequence of work in Summary, Section 01010.

1.03 DEFINITIONS

A. Erosion is the process by which a protective coating or substrate is worn away by friction resulting from repetitive mechanical interaction, including cavitation, impingement by liquid or solid particles, and relative motion against contacting solid surfaces or fluids.

B. Corrosion is the process by which a substrate and its properties are damaged or worn away by a chemical action or change, most often caused by an oxidation process.

1.04 SUBMITTALS

A. Submit the following items in accordance with Section 01300 Submittals/Permits:

1. Type of ultrasonic tester used, and limitations and specification, include thickness and radius which device is rated to measure.

1.05 DOCUMENTATION

A. Provide drawing showing location of corroded steel as follows: corroded steel greater than 10% and less than 50% and corroded steel greater than 50%.

1.08 TEST PROBE SPECIFICATIONS

Ultrasonic testing device to have preprogrammed sound velocities for 1018 steel, and specific substrate programmed in gage menu. Device to have a sound velocity range of 0.0492 to 0.393 mils/µs (1250 to 10000 m/s).

Instrument is to have a scan mode which enables 20 readings per second to be taken while the probe is dragged across the desired measurement area.

END OF SECTION

SECTION 05 01 50: SURFACE PREPARATION OF STEEL AND CONCRETE FOR COATING (ALTERNATE 1)

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section.

B. Refer to Section 00100—Instructions to Bidders—for alternates information.

1.03 RELATED WORK

A. Work related to this section includes, but is not limited to, the following:

1. Section 09 90 00 Painting

1.04 SUBMITTALS

A. Submit the following items in accordance with section 01300—Submittals/Permits:

1. Contractor Qualifications

a. Contractor performing the work under this section must have a minimum of ten years experience in comparable work and must submit a list, with references, of three buildings on which they worked in the last five years, employing workers skilled in the restoration processes and operations indicated.

b. List building name and address, architect, general contractor, and appropriate subcontractors with phone numbers and contact person.

2. Product Data

a. Manufacturer's literature for all materials specified or proposed for use on the project, properly labeled and referenced to the appropriate specification section.

b. Material Safety Data Sheets (MSDS) for each material where appropriate.

c. Type of abrasive material, and manufacturer's specifications.

d. Certification by the manufacturer that O.S.H.A. Standard PB-246-697 regarding use of

abrasives with less than 1.0% free silica are in product to be used.

1.06 QUALITY ASSURANCE

A. Attend a preconstruction conference with the City of Milwaukee Architect, Project inspector, and General Contractor's field superintendent, and all other involved trades to discuss and coordinate the work covered under this Section.

B. Attend bi-weekly job meetings during the course of the work.

1.07 DELIVERY, STORAGE AND HANDLING

A. Protect all materials in original unopened, labeled containers and packaging, and in compliance with manufacturer's directions.

1.08 PROJECT CONDITIONS

A. Comply with all applicable safety codes and regulations that govern the work, including OSHA and EPA regulations that cover wastewater disposal, VOC regulation, and governing air-quality-management district.

B. Provide safe access for the Architect or Architect's representative to review the cleaned area.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Manufacturer's products and specifications are generally referred to for identification; the products of other manufacturers meeting the specifications and standards of the specified systems may be submitted for review. THE BURDEN OF PROOF FOR "EQUAL" MATERIALS IS ON THE CONTRACTOR, who shall bear the costs and delays involved in the Architect's review of substitutions. Check all specified items upon Contract signing and initiate submittals in time to allow early ordering, so the work is not delayed. All materials are to be new, unless designated otherwise.

2.02 MATERIALS

A. Abrasives shall be materials produced in the United States by a company recognized as an established manufacturer of abrasive products.

B. Cleaners, wire brush and other removal tools to remove oil, grease, loose paint, rust, dirt, mold mildew efflorescence and sealers.

PART 3 –EXECUTION

3.01 EXAMINATION

Plans and dimensions under which the work is to be performed are based on the visual survey of existing conditions. No additional compensation or time extension will be made for dimensional errors or inaccuracies about existing conditions.

3.02 GENERAL PROCEDURES

A. Mechanically brush or otherwise scrape all loose rust, paint, etc. Remove dirt, grease with degreasers, and mold with product designed for this use before blast cleaning.

B. Protect adjacent surfaces and surfaces and ground below work area from damage and debris.

C. Abrade to near white blast cleaning surface, free of all visible oil, grease, dirt, dust, scale, rust, paint and oxides per SSPP-SP6 Commercial Blast Cleaning.

D. Protect cleaned area for repair and replacement of steel plate per plans and specifications.

END OF SECTION 05 01 50

SECTION 07 19 00 CONCRETE WATER REPELLENT

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section. Apply concrete water repellant to parapet walls and all concrete ledges.

B. Work related to this section includes, but is not limited to, the following:

1. Section 03 10 00 Maintenance of Concrete

C. Follow sequence of work in Summary of Work, Section 01010.

1.03 REFERENCES

A. ASTM D1653 – Standard Test Method for Water Vapor Transmission of Organic Coatings.

B. ASTM D1757 – Method of Test for Elongation of Attached Organic Coatings with Cylindrical Mandrel Apparatus.

C. ASTM D3273 – Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.

D. ASTM D3274 – Standard Test Method for Evaluating Degree of Surface Disfigurement of Paint Films by Microbial (fungal or Algal) Growth of Soil and Dirt.

1.04 SUBMITTALS

A. Submit in accordance with Section 01300- Submittals

B. Provide data for silicone waterproofing, primer, and accessories. Include material safety data sheets (MSDS) and certifications showing compliance with specified standards.

C. Manufacturer's instructions for installation and maintenance.

D. Copy of warranty/warranties specified.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Three years successful experience applying waterproofing and acceptable to manufacturer for installing their products. Applicator to be experienced in the application of the specified products, including, if required by manufacturer, certification in application of product.

2. Employs persons trained for the application of the specified products.

B. List, at preconstruction meeting, environmental regulations, test panel procedures, protection of surrounding areas, surface preparation and application, cleanup.

1.06 ENVIRONMENTAL REGULATIONS

Comply with federal, state and local environmental regulations regarding the testing, handling, treatment, containment, collection, transport, disposal and discharge of hazardous wastes and cleaning effluents. Contact manufacturer for information on product.

1.07 PRE-INSTALLATION CONFERENCE

A. At the preconstruction meeting, the water repellent contractor shall present the following items for review:

1. Protection of adjacent surfaces, including windows, grilles, roofing, and other building components which will not receive water repellent.

2. Protection of landscaping, including trees, shrubs, grasses and flowering plants.

3. Protection against drift from spray onto cars and persons in vicinity.

4. Safety precautions to protect staff and visitors to building from coming in contact with water repellent spray.

5. Weather conditions forecast.

6. Other items related to successful execution of work.

1.08 PROJECT CONDITIONS

A. Comply with all applicable safety codes and regulations that govern the work, including OSHA and EPA regulations that cover wastewater disposal, VOC regulation, and governing air-quality-management district.

B. Do not apply water repellant when temperature is below 50° F, or when temperature will fall below 40° F within 24 hours of application. Verify that concrete temperature is at least 50° F before applying water repellent. Do not apply when air and/or concrete temperature exceeds 90° F, or when humidity is expected to exceed 90 percent within 24 hours of completion of any application of repellent.

C. Do not apply if rain or other precipitation is expected within 24 hours of application.

D. Do not spray in strong windy conditions.

1.09 PRODUCT HANDLING

A. Deliver products in manufacturer's original contains, clearly labeled with product identification, date of manufacture, and shelf life.

B. Store materials in clean, cool, dry area at temperatures between 40 and 90 degrees F.

C. Do not use water repellent and primer after manufacturer's stated shelf life.

1.10 WARRANTY

A. Manufacturer's warranty- to be the material as ordered.

B. Contractor's 3 year application warranty, to cover labor and materials for properly applied water repellent.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Nox-Crete Products Group, 1444 South 20th Street, Omaha, Nebraska 68108 (800) 669-2738; BASF The Chemical Company, 1000 Compass Drive, Florham Park, N.J. 27922 (800) 526-1072; Dayton Superior Chemical Division, 1125 Byers Road, Miamisburg, OH 45542 (888) 977-9600; or approved equal.

2.02 WATER REPELLANTS

A. Nox-Crete Stifel GC Standard performance for horizontal surfaces, water based silane water repellant, Low-VOC single component water repellant, active solids 10 percent.

B. BASF The Chemical Company Enviroseal 20 water based silane water repellant. Low VOC 20% alkylalkoxysilane penetrating water repellant sealer. .

C. Dayton Superior WEATHER WORKER 40% J29WB penetrating water based silane water repellant, Ready to use, low VOC, active material 40% minimum by weight.

D. Approved equal.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify by examination that concrete surfaces are clean, and acceptable to receive the specified water repellant application.

B. Verify that patched concrete has cured a minimum of 28 days.

3.02 PROTECTION

A. All cars or other vehicles are to be removed from parking areas when work is being done. Protect all surrounding areas, including landscaping, building occupants, pedestrians, roofing material, windows, including glazing and framing materials, and metal vents and all other non-masonry surfaces during the work from contact with silane spray, fumes, residues, wastes in accordance with manufacturer's instructions.

B. Tightly cover windows, including frames, doors, grilles and any other metal, all parapet roofing material, and all other parts of the building not to be sprayed with water repellant, with polyethylene sheeting. All sheeting to be taped or otherwise securely fastened in place.

C. Wet down landscaping prior to work. Cover landscaping, including trees, shrubs, grass and flowering plants, with polyethylene sheeting, held in place by twine and u-pins.

D. Divert and protect pedestrian and auto traffic.

E. Avoid wind drifting of spray on persons, vehicles, roadways and landscaping.

3.03 CONCRETE SURFACE PREPARATION

A. All concrete to be cleaned with brush and water, using low pressure spray.

B. If detergent is used for cleaning, all residue of cleaner is to be removed before application of water repellant.

C. Prepare surfaces per manufacturer's specifications.

D. Concrete should be dry to the touch.

E. All protection measures to be in place prior to any application of water repellant.

F. Obtain weather forecasts that predict temperatures will not be below 50° F for a minimum of 24 hours after application water repellant. Apply water repellant only when air and concrete surface temperatures are 50° F to 90° F.

3.05 APPLICATION INSTRUCTIONS

A, Coat all walls that are repaired, and entire upper concrete parapet, both inside and outside; all concrete ledges and adjacent surfaces to a distance of two feet; and all concrete patches, including adjacent two feet around repairs.

B. Verify that use date of product is less than 12 months from the date of manufacture prior to its use. Contractor shall replace any product that has expired with no cost to the City of Milwaukee.

C. Read manufacturer's preparation instructions for application prior to beginning of work. Apply by low pressure spray flood coating or in small areas, by brush or roller. Coverage rates will depend upon the absorption characteristics of the substrate, but will typically be in the range of 2 to 6 m^2/L; use test area results as a basis for application. If two applications of formula are required to fully saturate the substrate, the second application must be carried out immediately after the first, before it has cured. Refer to manufacturer's tables and application of material.

D. Apply per manufacturer's specifications.

E. Inspect application. Verify that results compare with approved field sample. Ensure substrates are adequately protected from water penetration periodically during application.

F. Refer to manufacturer's specifications and MSDS sheets regarding precautionary measures to be taken regarding use of this product.

3.06 CLEAN UP

A. Remove all plastic sheeting and other protection from windows, grilles, etc. on building, and verify that all painted surfaces, metal and glazing are in the same condition as before application of water-resistant material. Wash materials as needed. In the event of damage to painted surfaces, clean and repaint with paint of the same type as existing on the metal. In the event of damage to the metal windows or other metal, determination will be made by the City of Milwaukee as to whether the damage is severe enough to warrant replacement. In this event, the Contractor will be responsible for paying for the cost of replacement material/units.

B. Remove all plastic sheeting or other protection from landscaping. The City of Milwaukee Inspector will determine if plants need to be replaced. Cost of replacement to be borne by the Contractor.

END OF SECTION 07 19 00

SECTION 07 56 00 FLUID APPLIED MEMBRANE ROOFING--ELASTOMERIC ROOFING MEMBRANE SYSTEM (Alternate 3)

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section.

B. Refer to Section 00100—Instructions to Bidders—for alternates.

C. Provide all labor, equipment and materials necessary for application of new fluid applied membrane roofing system as described on the plans and specified herein.

E. Work related to this section includes, but is not limited to, the following:

1. Section 03 01 00 Maintenance of Concrete
2. Section 05 01 00 Maintenance of Metals
2. Section 05 01 50 Surface Preparation for Steel and Concrete For Coating
4. Section 09 90 00 Painting

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C836– Standard Test Method for High Solids Content for Cold Liquid Applied Elastomeric Waterproofing—meet or exceed.

1.04 SUBMITTALS

A. Submit in accordance with Section 01300 – Submittals.

B. Product data for the following:

1. Non-porous metal primer for membrane system
2. Concrete primer VOC compliant for membrane system
3. One part liquid applied elastomeric roofing membrane polyurethane coating for horizontal or vertical surfaces.

C. Copy of manufacturer's warranties.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Applicator shall have a minimum of 3 years experience in application of fluid applied membrane roofing sealants.

2. Applicator to provide names of Owner of three buildings, and contact information: where membrane roofing sealant was applied by applicator.

B. Products provided shall be from a single manufacturer.

1.06 PRE-INSTALLATION EVALUATION OF STEEL AND CONCRETE TO BE COATED

A. Prior to application of membrane roofing sealants, verify that surfaces are clean of oil, debris, dirt, rust, and that all new steel has been installed.

B Expiration of product dates to be 6 months prior to application date.

C. Verify that all concrete epoxy and repair work has been completed, and concrete is cured.

D. Verify that all banding and steel work on tank has been completed, and that antennas have been relocated. All steel on parapet to be removed.

1.08 PRE-INSTALLATION CONFERENCE.

A. Attendees to include persons directly concerned with sealant renovation, including contractor and subcontractor, Architect and City representative.

B. Review:

1. Schedule for removal of existing and installation of new antennas and cabling, and lightning protection system.

2. Schedule for cleaning, repairing parapet, catwalk, and installation of new steel banding for antennas.

3. Weather conditions forecast.

4. Other items related to successful execution of work.

1.09 PRODUCT HANDLING

A. Deliver products in manufacturer's original containers clearly labeled with product identification, date of manufacture, and shelf life.

B. Store materials in a clean, dry area at temperatures below 86 degrees F. and above 50 degrees F.

C. Do not use materials after manufacturer's stated shelf life.

1.10 PROJECT CONDITIONS

A. Do not install primers or elastomeric materials during inclement weather or when such conditions are expected within 24 hours. Allow wet surfaces to dry.

B. Primer and Elastomeric Roofing Membrane application temperatures are between 40°F and 95°F.

C. Do not install primers or elastomeric materials when temperature is 5° F below dew point.

1.11 WARRANTY

A. Provide installer's 5 year workmanship warranty.

B. Provide manufacturer's 1 year material warranty for properly installed products.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS AND PRODUCTS

A. Primers: Tremco TREMprime Non-Porous Primer, TremLar 120 EP Primer, VOC Compliant Epoxy Primer. TREMCO PTY LTD, Unit 1, 2 Park Rd, PYDALMERE NSW 2116 Australia, tremco@tremco.com,.au; TREMCO 3735 Green Road, Beachwood, OH 44122. OR APPROVED EQUAL

B. Elastomeric coating: TREMLar LRM H and V, One part, Liquid Applied, elastomeric Roofing Membrane tremco@tremco.com,.au; TREMCO 3735 Green Road, Beachwood, OH 44122. OR APPROVED EQUAL

C. Roof Primers and elastomeric coatings must be the product of a single manufacturer.

PART 3—EXECUTION

3.01 Provide new elastomeric coating system, consisting of primer, detail coat, membrane coat and top coat.

A. TREMCO Tremprime Nonporous primer:

1. Verify that all steel is sound, clean, dry and free from contamination.

2. Do not thin. Prime according to Manufacturer's specifications.

3. Dry time is 15 minutes at 70° F. Primer must be completely dry before applying sealant or coating.

B. TREMLar 120 EP Primer:

1. Verify that all concrete is sound, clean, dry and free from contamination. Perform rubber mat test to ensure dry concrete prior to applying the TREMLar base coat.

2. Do not thin. Prime according to Manufacturer's specifications.

3. Do not apply urethane coatings or sealants to the surface of the cured TREMLar 120 EP primer if the three day open time has expired. Maximum open time 72 hours at 70° F after tack-free cure.

C. TREMLar LRM H and V Elastomeric Roofing Membrane:

1. Verify surfaces have been primed, and application of TREMLar LRM will take place within specified open window.

2. Vertical Penetration: Apply TREMLar LRM-V as a flashing by trowel to specified height, per manufacturer's specifications.

3. Pretreat 1/16 inch or less width shrinkage and non-moving structural cracks with TREMLar LRM-V per manufacturer's specifications.

4. Fort cracks greater than 1/16", rout, moving structural joints and cold joints to ¼" to ½" deep. Insert a 3/8" closed cell polyethylene backer rod, recess 1/8 inch from surface. Fill recess with TREMLar LRM-V and extend three inches in either side of crack/joint.

5. Use medium nap roller or brush for application. Follow manufacturer's specifications.

END OF SECTION 07 56 00

SECTION 07 72 33 ROOF HATCH AND ACCESSORIES- (ALTERNATE 4)

PART 1- GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section.

B. Refer to Section 00100—Instructions to Bidders—for unit pricing.

C. Section includes removal of existing access hatch and bracketing, and installation of new custom access hatch and safety railing system and accessories as shown on the drawings and specified herein.

D. Work related to this section includes, but is not limited to, the following:

1. Section 03 01 00 Maintenance of Concrete
2. Section 05 01 50 Surface Preparation of Steel and Concrete for Coating
3. Section 07 56 00 Fluid Applied Membrane Roofing

1.04 SUBMITTALS

A. Submit in accordance with Section 01300 – Submittals.

B. Shop drawings detailing roof hatch, attachments, curb, flanges, insulation.

C. Show materials, finishes, locations of fasteners, types of fasteners, locations and types of operating hardware, and details of installation.

D. Show connections of units and hardware to other work, Include schedules showing location of each type and size of unit.

D. Show location and type of safety railing system and attachments.

E. Provide manufacturer's technical data for each type of assembly, including setting drawings, templates, finish requirements, and details of anchorage devices.

F. Provide manufacturer's installation instructions, indicate installation requirements and existing conditions hatch is to fit within.

G. Operating and maintenance manuals to be submitted at closeout.

H. Copy of supplier's one year warranty, and manufacturer's warranty to be submitted at closeout.

1.05 QUALITY ASSURANCE

A. Installer's Qualifications:

B. Manufacturer shall have a minimum of 3 years experience in fabrication of metal access hatches and accessories.

1.08 PRE-INSTALLATION CONFERENCE.

A. Attendees to include persons directly concerned with access hatch fabrication and installation, including contractor and subcontractor, Architect and City representative.

B. Review:

1. Schedule for removal of existing hatch, preparation of concrete, and installation of new access hatch.

2. Weather conditions forecast.

3. Other items related to successful execution of work.

PART 2 – PRODUCTS

2.01 MANUFACTURER

A. Babcock Davis, 9300 73rd Ave. N, Brooklyn Park, MN 55431. Phone 888 412-3726, email info@babcockdavis.com.

B. Or approved equal. Approved equal to provide same description of product, including size.

2.20 MANUFACTURED UNITS

A. Manufacturer to provide a custom size aluminum roof access hatch, size as indicated on drawings.

B. Roof hatch may be a product of a manufacturer specializing in custom work.

C. Babcock Davis PERSONNEL SERIES Aluminum Roof Hatch, mill finish.

1. Cover and liner: 11 gauge aluminum cover with one inch rigid fiberboard insulation and 18 gauge aluminum cover liner.

2. Curb: 11 gauge aluminum both outside and inside, with one inch rigid fiberboard insulation. Mounting flange for mounting to the top of the concrete slab.

3. Hinges Type 316 stainless steel, tamper-proof hinge contained within hatch as part of spring assembly.

4. Latch: Type 304 stainless steel slam latch with turn handle and inside/outside padlock hasps.

5. Springs: Greased heavy-duty compression springs in telescoping tubes.

6. Hardware: Type 316 stainless steel hold open arms with red vinyl grip handle that automatically locks door when opened. EPDM seal around cover to prevent water infiltration. Handle to be operable outside and inside with one hand.

7. Mounting Flanges: Double wall curb with 3.5" horizontal mounting flange.

8. Size: 18" x 18", verified, mounted on top of existing concrete.

D. Safety Railings- model type SRSG modified.

1. Material to be 1 ¼" ID A53 Grade B seamed pipe or galvanized 1-5/8" OD A500 seamed tube.

2. Pipe Caps to be weather and light resistant vinyl 1 ½" deep and fit snugly over pipe ends. Attachment to be such that they will withstand wind of 60 mph.

3. Hardware to be hex head bolts 316 stainless steel.

4. Self Closing 1 ½" nominal; diameter tubing, zinc plated steel with 316 type SST hardware to lock hatch in the open position, locking devices having n inside and outside handle.

5. Top rail, mid rail and chain or self closing gate, with hatch curb acting as toe plate. Test load 200 pounds. Minimum 42" above finished roof deck.

3.0 INSTALLATION

A. Verify existing conditions, examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

B. Verify tolerances and correct improper conditions.

C. Remove existing roof hatch and dispose of. Cut hatch attachments at inside ladder. Rebuild attachments to inside ladder, using same size steel as removed. Install new roof hatch over opening, new roof hatch size per plans.

D. Securely install new roof hatch to existing concrete, per manufacturer's specifications.

E. Coordinate installation of components of this section with repair of structural and other steel, and epoxy concrete work.

F. Separate metal from incompatible metal or corrosive substrates, including wood, by coating concealed surfaces at locations of contact, with bituminous coating or proven other permanent separation.

G. Unless otherwise indicated, set flanges of accessory units in a thick bed of roofing cement to form a seal.

3.3 ADJUSTMENTS

A. Adjust movable parts for smooth operation.

3.4 CLEANING

A. Clean exposed surfaces per manufacturer's written instructions. Touch up damaged metal coatings.

END OF SECTION 07 72 33

SECTION 07 91 00 CAULKING AND SEALANTS

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section. Section includes removal of existing sealant and backer rods, and installation of new backer rods and sealant, or sealant, including cleaning, priming, joint backing, tooling and testing.

B. Work related to this section includes, but is not limited to, the following:

1. Section 03 01 00 Maintenance of Concrete
2. Section 07 19 00 Concrete Water Repellant

C. Refer to Section 00100 – Instructions to Bidders – for work performed on a Unit Price basis included in this Section.

1.03 REFERENCES

A. American Society for Testing and Materials (ASTM):

1. ASTM C639 – Standard Test Method for Rheological (Flow) properties of Elastomeric Sealants.

2. ASTM C679 – Standard Test Method for Tack-Free Time of Elastomeric Sealants.

3. ASTM C719 – Standard Test Method for Adhesion and Cohesion of Elastomeric Joint Sealants Under Cyclic Movement (Hockman Cycle)

4. ASTM C794 – Standard Test Method for Adhesion-in-Peel of Elastomeric Joint Sealants.

5. ASTM C920 - Elastomeric Joint Sealants

6. ASTM C1135 – Standard Test Method for determining Tensile Adhesion Properties of Structural Sealants.

7. ASTM C1193 – Standard Guide for Use of Joint Sealants.

1.04 SUBMITTALS

A. Submit in accordance with Section 01300 – Submittals.

B. Product data for silicone sealants, primers, joint backing cleaning solvents, and other accessories. Include material safety data (MSDS) sheets and certifications showing compliance with specified standards.

C. Shop drawings detailing renovation sealant joints and indicating dimensions, materials and profiles.

D. Manufacturer's sealant color chart for selections by Architect.

E. Manufacturer's instructions for removal, joint preparation, repair and replacement.

F. Copy of manufacturer's warranties.

1.05 QUALITY ASSURANCE

A. Applicator Qualifications:

1. Applicator shall have a minimum of 3 years experience in application of silicone sealants.

2. Applicator to provide names of Owner of three buildings, and contact information: where silicone sealant was applied by applicator.

B. During construction period each type of sealant and related primer and backing shall be products provided by a single manufacturer.

1.06 PRE-INSTALLATION ADHESION TEST

A. Prior to application of sealants, test each renovation condition to ensure that sealants satisfactorily adhere to substrate.

B. Conduct test in field of by submission of representative substrate sample to manufacturer for factory test.

C. Apply sealant to sample substrate and perform hand-pull tab test in accordance with ASTM C-1193, Method A.

D. Determine if primer is required. If so, re-test using primer.

E. Submit report to Architect with description of test, results, and recommended installation procedures to obtain proper adhesion.

1.07 FIELD SAMPLE

A. Renovate a typical concrete sealant joint to illustrate method, workmanship, adhesion, weatherproofing, tooling and appearance.

1. Minimum length 6 feet.
2. Accepted sample may remain as part of work, and will be used as a basis for acceptance of remaining sealant work. Unacceptable samples shall be removed.

1.08 PRE-INSTALLATION CONFERENCE.

A. Meet at the site after the preconstruction meeting, but before installation of sealant is to proceed.

B. Attendees to include persons directly concerned with sealant renovation, including contractor and subcontractor, Architect and City representative.

C. Review:

1. Schedule for renovating sealants and coordination with other renovation work items.

2. Identification of locations where sealant joints will be provided- at all concrete ledges and around all cable access plates.

3. Protection of installed items and finishes.

4. Approved field sample to be used as a measure of acceptance.

5. Weather conditions forecast.

6. Other items related to successful execution of work.

1.09 PRODUCT HANDLING

A. Deliver products in manufacturer's original containers clearly labeled with product identification, date of manufacture, and shelf life.

B. Store materials in a clean, dry area at temperatures below 86 degrees F. and above 50 degrees F.

C. Do not use sealants and primers after manufacturer's stated shelf life.

1.10 PROJECT CONDITIONS

A. Do not install silicone sealants during inclement weather or when such conditions are expected within 24 hours. Allow wet surfaces to dry.

B. Sealant application temperatures are between 50°F and 95°F.

C. Do not install sealants when temperature is 5° F below dew point.

1.11 WARRANTY

A. Provide installer's 5 year workmanship warranty.

B. Provide manufacturer's 1 year material warranty for properly installed products.

PART 2 PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

I. GE Construction Sealants, 9930 Kincey Avenue, Huntersville, NC 28078, 877 943-7325; Tremco Commercial Sealants and Waterproofing, 3735 Green Road, Beachwood, OH 44122, phone 800 321-7906; Dow Corning Corporation, Corporate Center, P.O. Box 994, Midland, MI 48686, phone 800 248-2481.

J. Approved equal.

2.2 PRODUCTS

H. Joint Sealant Replacement in Concrete walls and around new/patched concrete ledges

1. Sealants

a. Dow Corning 756

b. Tremco Spectrem III

c. GE Silpruf ND

d. Approved equal

2. Primer- per manufacturer's recommendation

3. Backer rods- closed cell polyethylene rod. The diameter of the rod is to be not less than 25% in excess of the joint width. Surface skin of the rod shall be continuous and unbroken.

4. Surface cleaner- Denatured alcohol or as otherwise required by sealant manufacturer to obtain optimum adhesion.

5. Bond Breaker Tape - 0.006 inch thick polyethylene, to which sealant does not bond, adhesive-backed on one side, width as required.

I. Sealant at all metals

1. Sealants

a. GE SCS 9000

b. Dow Corning 795 Building Sealant

c. Tremco Spectrem II

2. Primer – per manufacturer's recommendation.

PART 3—EXECUTION

3.01 JOB-SITE TESTS for all concrete areas:

A. Three weeks prior to the start of sealant application, identify 2 foot long test areas for each type of sealant application. Apply bond breaker tape to two inches of each test area at each type of joint to be tested. Provide a tab for peeling the sealant off in these locations. Apply sealant over backer rods or in joint per this specification. City Inspector to approve of application test areas.

B. After curing for 21 days, grasp the 2 inch tabs on the ends of the joints and the strip samples and pull the sealant at 90 degrees to the surface.

C. With acceptable applications, the sealant shall fail cohesively (tearing within itself) with no adhesive (debonding) failure.

D. If any sample debonds from the substrate, the sealant manufacturer shall make recommendations regarding changes in surface preparation or primers, and submit these recommendations to the City for review. Repeat sealant adhesion tests as many times as required to produce an acceptable allocation at no additional cost to the Owner and with no delays to the project schedule.

E. During project sealant application, test adhesion of exterior perimeter sealant joints ant the rate of one test per 400 lf of installed sealant, for each type of joint sealed. If application of sealant is not acceptable to the City, conduct additional test as directed by the Architect.

3.02 SEALANT INSTALLATION at metals:

A. Preparation

1. All metal to be clean and free of dirt, scale and other foreign material.

2. Solvent cleaning for metal surfaces: Use two clean, white, soft, lint-free cotton cloths and clean, fresh denatured alcohol and other solvents as required to clean metal and the nonporous surfaces. Wet one cloth with solvent and wipe surface vigorously Use second cloth to clean surface before solvent evaporates. Pump solvent from cans onto first cloth. Do not dip cloth in solvent, to avoid contamination of solvent. Repeat this two- cloth procedure until surface does not discolor cloth, and repeat at least once Do not solvent clean at temperatures below 45° F.

B. Apply Primer per manufacturer's recommendations

1. Apply primer to clean, dry metal at ambient temperatures above 45° F.

2. Pour primer into a clean container for use. Do not pour more than a ten-minute supply into container to prevent deterioration.

3. Replace cap on primer can immediately after pouring. Remove from the site any primer that contains a white precipitate or that has thickened.

4. Apply primer with a clean brush. Do not apply primer to exposed surfaces beyond sealant. Mask all surfaces before priming, except where surface irregularities will allow the primer to wick beneath the masking tape. Use only one coat of primer. Do not apply primer in a thick layer, which will form a white, powdery film. Remove any films with a clean, dry, lint-free cloth, and repair in accordance with manufacturer's written recommendations.

5. Allow primer to dry. Do not allow primer to become wet before sealant application.

6. Apply sealant around new metal cable access plates on water tank, per manufacturer's specifications.

3.03 SEALANT INSTALLATION - for Concrete Joints

A. Preparation

1. Remove existing sealant and backer rods. Remove all dirt and or other foreign substance, including existing sealant remnants, from surfaces to receive sealant. Slightly grind and or wire brush joints until substrate is clean. All surfaces shall be dry before preparation begins. The solvent cleaning preparation is to be done immediately before insertion of the backer rod or bond breaker, and after any temporary rods or seals are removed.

2. For new concrete, concrete must be thoroughly cured 28 days before installation of sealant.

B. Apply Primer

1. Apply primer to all substrates before backer rod installation Apply primer to clean, dry substrates at ambient temperatures above 45° F.

2. Pour primer into a clean container for use. Do not pour more than a ten-minute supply into container to prevent deterioration.

3. Replace cap on primer can immediately after pouring. Remove from the site any primer that contains a white precipitate or that has thickened.

4. Apply primer with a clean brush. Do not apply primer to exposed surfaces beyond sealant. Mask all surfaces before priming, except where surface irregularities will allow the primer to wick beneath the masking tape. Use only one coat of primer. Do not apply primer in a thick layer, which will form a white, powdery film. Remove any films with a clean, dry, lint-free cloth, and repair in accordance with manufacturer's written recommendations.

5. Allow primer to dry. Do not allow primer to become wet before sealant application.

C. Install back-up material

1. Unless noted otherwise on plans, install clean, dry backer rod in all joint openings, against dry substrates. Replace any backer rod if it becomes wet due to weather or other causes, and replace any backer rod not sealed over by the end of each day, and solvent clean surfaces again.

2. Backer rod sizes to match joint width. Do not twist rods together. Butt ends of rids tightly. Provide a full range of rod sizes at the site of all sealant work.

3. Do not install backer rods in wet weather.

4. Do not touch with fingers or otherwise contaminate the substrate surfaces while installing the backer rod or bond breaker tape.

5. Do not rupture the skin of the closed cell backer rod during installation. Do not cut rod lengthwise as a substitute for a smaller diameter rod. Remove any rod containing punctures and solvent clean the surfaces again before continuing with new rod and sealant application. For typical butt sealant joints, place the backer rod or bond breaker so the sealant depth measured at the center of the joint after tooling is one-half of the sealant joint width, with a minimum depth of ¼ inch and a maximum depth of ½ inch. Do not prepare or seal over masonry that is less than twenty-one days old or was re-pointed within twenty-one days.

C. Install Sealant

1. Sealant types per list by substrate and key.

2. Inspect each cartridge or container of sealant before use and verify that the production date is within six months of the date of application. Remove from the site all sealant more than six months old. Each applicator shall understand the method of decoding the production date on the cartridge or container.

3. Mask all exposed surfaces not masked for priming, along joints before applying sealant.

4. Recheck correct backer rod and bond breaker tape positioning before applying sealant. Apply sealant only to clean, dry, primed surfaces (where required) at ambient temperatures above 45° F. Seal joints within 10 hours of primer application.

5. Fill all joints solidly and continuously with sealant, neatly applied with a standard caulking gun in a continuous motion, sousing a slight pressure. "Push" the sealant bead ahead of the nozzle; do not "drag" the nozzle.

6. Within five minutes of sealant application and before skin develops on sealant, dry tool the joint surface with a concave tool to ensure intimate contact with substrate and to eliminate air bubbles. Do not use any liquid for tooling. Provide a smooth, uniform finished surface.

7. Make joints formed from different colored sealant before skin forms on the sealant.

8. Remove masking tape within ten minutes of tooling. Avoid contaminating adjacent surfaces with excess sealant. Remove all traces of smears and droppings on metal or glass surfaces promptly, using a solvent recommended by the sealant manufacturer that will not damage or discolor the building surfaces. Remove smears and droppings on porous surfaces m mechanical means after cure of the sealant

9. Coordinate work with other trades to prevent contamination of fresh sealant by dust or debris.

END OF SECTION

SECTION 09 90 00 PAINTING Contract and (Alternate 1)

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

1.02 SUMMARY

A. Refer to Section 01010—Summary of Work—for the scope of work included in this Section. Contract includes painting of newly installed metal in upper catwalk. Alternate includes painting of replaced steel under section 050150 and new steel part of alternates, not included in patching of removed access plates for existing antennas. Alternate also includes painting of existing drains and access hatches in upper catwalk.

B. Work related to this section includes, but is not limited to, the following:

1. Section 03 01 00 Maintenance of Concrete
2. Section 07 19 00 Concrete Water Repellant

C. Refer to Section 00100 – Instructions to Bidders – for work performed on a Unit Price basis included in this Section.

1.03 STANDARDS

A. General: Standard coating terms defined in ASTM D16 apply to this section.

B. SSPC:

1. Painting Manual Vol. 1, Good Painting Practice.

2. Painting Manual Vol. 2, Systems and Specifications.

1.05 SUBMITTALS

A. Schedule shall include a listing of specified paint type designation numbers of finish paints to be installed, including primers.

B. Provide manufacturer's technical information, including label analysis and instructions for handling, storing and applying each coating material proposed for use.

C. Manufacturer's complete range of available colors.

D. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOC's).

E. Provide two drawdown samples illustrating each paint color, texture and finish, size 8 ½ x 11 inches.

F. Contractor performing the work under this Section must have a minimum of five years experience in comparable work and must submit a list, with references, of three building on which they worked in the last five years, Employ workers skilled in the restoration processes and operations indicated.

1.06 QUALITY ASSURANCE

A. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this project with a record of successful in-service performances.

B. Primers and intermediate paints shall be the products manufactured or recommended by the finish paint manufacturer.

1.07 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the project in manufacturer's original, unopened packages and containers bearing manufacturer's name and label, and the following information:

1. Manufacturer's name
2. Product name or title of material
3. Product description
4. Manufacturer's stock number and date of manufacture
5. Manufacture's shelf life expiration
6. Color name and number
7. Contents by volume, for pigment and vehicle constituents
8. Thinning instructions
9. Required surface preparation and application instructions
10. Recommended coverage per gallon
11. Wet and dry film thicknesses
12. Drying time
13. Clean up procedures
14. VOC content

B. Store materials not in use in tightly covered containers in a well ventilated area at a minimum ambient temperature of 45° F away from direct sunlight. Maintain containers used in storage in a clean condition, free of foreign materials and residue.

C. Protect from freezing. Remove oily rags and waste daily. Take necessary measures to ensure that workers and work areas are protected from fire and health hazards resulting from handling, mixing and application.

D. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.08 PROJECT CONDITIONS

A. Apply paints only when the surface temperatures of materials to be painted are between 50 and 90 degrees F.

B. Do not apply paint when relative humidity exceeds 85% or to damp or when surfaces.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Except where other manufacturer's products are specifically required, Tnemec, paint products are described herein. Contractor may use equivalent products or equal or better quality, based on the characteristics of Tnemec products specified.

B. If any substitute equivalent product is to be used, a list comparing products of the proposed substitute with the product specified must be submitted within thirty days after award of contract. If list is not submitted within those thirty day, the owner will reserve the right to have originally specified product used.

2.02 PAINT MATERIALS, GENERAL

A. Material compatibility, Provide block fillers, primers, undercoats and finish coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material quality: provide coatings specified,

C. Colors: Provide standard color list for architect's color selection. Provide sample of existing water tank color to Architect for color matching.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine substrates, areas and conditions with the applicator present, under which painting will be performed for compliance with paint application requirements.

1. Surfaces to be painted shall be thoroughly clean and dry, free from all dust, dirt and other contaminants before paints are applied

2. Verify that all drains have been brushed, and are free of loose rust scale.

3. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint, besides drains, are near white clean blast cleaned and thoroughly dry.

4. Start of painting will be construed at the Applicator's acceptance of surfaces and conditions within a particular area.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers. Notify the Architect about anticipated problems using the materials specified over substrates primed by others.

3.02 PREPARATION

A. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.

B. Provide barrier coats over incompatible primers or remove and reprime.

C. Verify that newly patched steel is ground smooth, so that existing and new adjacent surfaces are flush.

D. Treat bare or sandblasted metal with a metal treatment wash coat before priming or painting.

E. Touch up bare areas and shop applied prime coats that have been damaged. Wire brush clean with solvents recommended by paint manufacturer, and touch up with the same primer as the shop coat.

F. Galvanized surfaces Clean with non-petroleum based solvents so surface is free of oil and surface contaminants. Remove pretreatment from galvanized sheet and metal fabricated from coil stock by mechanical methods.

3.03 APPLICATION

A. Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied.

B. Provide finish thickness specified, herein, and per manufacturer.

C. Apply successive coats per manufacturer's specifications. Drying and curing times per manufacturer.

D. Application procedures: Apply paints and coatings by brush, roller, spray or other applications according to manufacturer's written instructions.

E. Remove, refinish or repaint areas not in compliance with specifications, damaged or repaired after painting work has been done.

3.04 APPLICATION AREAS

A. Repaired areas on water tank- prime and paint.

B. Drains and access covers – prime and paint.

C. New antenna ring and attachments – paint.

D. New tie-off ring and attachments on water tank – paint, prime if needed before painting.

3.05 CLEANING

A. Clean all areas where painting was taking place at the end of each workday. Remove empty containers, rags, rubbish and other discarded paint materials from the site.

B. Do not dispose of rags containing flammable materials in trash barrels on the construction site.

3.07 PROTECTION

A. Protect work of other trades. Whether being painted or not, against damage by painting. Correct Damage by cleaning, repairing, replace or repainting.

B. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

PART 4 PAINTING SCHEDULE

4.01 GENERAL

A. Permanently exposed structural steel, including structural steel framing and miscellaneous steel, existing and new, not scheduled for coating with liquid elastomeric roofing membrane.

B. Antenna banding, supports and mounts.

C. Tie off banding and supports.

D. Existing and new drains and access covers.

4.02 SCHEDULE

E. Paint Schedule:

1. For existing drain covers and existing cleaned steel: CHEMBUILD Series 135 Self priming coating, modified Polyamidoamine Epoxy. Semigloss finish. 6 mils dry. Number of coats will vary with substrate. Apply per TNEMEC specifications. (ALTERNATE 1 and contract).

2. For new steel and existing drains: Catwalk rehabilitation, existing and new drains and access covers, and permanently exposed structural steel on water tank, and patched steel on water tank: HI-BUILD EPOXOLINE II N69 or V69, Polyamidoamine Epoxy. Satin, two coat system 6.0 dry mills. Self Priming. Number of coats will vary with substrate. Apply per TNEMEC specifications.

END OF SECTION 09 90 00

SECTION 33 79 93 LIGHTNING PROTECTION

PART 1 –GENERAL

1.01 SUMMARY

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

D. This section specifies the lightning protection system for the antennas on the water tank. Ground all metal mounting hardware, mast and tower as well as shield of co-ax. This system provides safety for the building and occupants by preventing damage to the structure caused by lightning. The design of this system is to be in strict accordance with this section of the specification and all contract drawings that apply.

E. The work covered under his section of the specifications consists of furnishing labor, materials and services required for the completion of a functional and unobtrusive lighting protection system approved by the architect and engineer.

J. A firm actively engaged in the installation of Certified Lightning Protection Systems and listed with Underwriter's Laboratories, Inc., and the Lightning Protection Institute shall install the system.

1.02 SYSTEM DESCRIPTION

A. The entire lightning protection system shall be designed and installed in accordance with:

1. Lightning Protection Institute (LPI) Standard #175.
2. National Fire Protection Association (NFPS) Document #780.
3. Underwriter's Laboratories, INC. (U/L) Standard #96A.

1.03 SUBMITTALS

A complete shop drawing set shall be submitted to the architect and engineer for approval prior to commencement of the installation. The shop drawing will show the extent of the system layout designed for the structure along with details of the products to be used in the installation.

1.04 QUALITY ASSURANCE

A. The contractor shall furnish an LPI IP Certificate or a U/L Certificate upon completion of the installation

B. The system installation shall be made under the supervision of an LPI Certified Master Installer, and the LPI System Certification shall be delivered, upon completion of the project, to the owner.

2.01 PRODUCTS

A. All materials shall comply in weight, size and composition with the requirements of the UL 96 Materials Standards. All equipment shall be UL listed and properly labeled. The systems furnished under this specification shall be the standard product of a manufacturer regularly engaged in the production of lightning protection equipment and a member of the LPI. Equipment shall be the manufacturer's latest approved design of construction to suit the application where it is to be used in accordance with the accepted industry standards and with NFPA, LPI and UL requirements.

C. Acceptable Manufacturers:
1. East Coast Lightning Equipment, Inc. (www.ecle.biz)
2. ERICO, Inc. (www.ericom.com)
3. Harger, Inc. (www.harger.com)
4. Heary Brothers Lightning Protection Co., Inc. (www.hearybros.com)
5. Independent Protection Company, Inc. (www.ipclp.com)
6. Preferred Lightning Protection) (www.preferredlp.com)
7. Robbins Lightning, Inc. (www.robbinslightning.com)
8. Thompson Lightning Protection, Inc. (www.tlpinc.com)

D. Materials:

1. Class I materials shall be used for systems on structures not exceeding 75 feet in height and Class II materials shall be used for systems on structures exceeding 75 feet above grade.

2. Copper shall be of the grade ordinarily required for commercial electrical work, generally designated as being 95% conductive when annealed. Aluminum conductors shall be of electrical grade aluminum.

3. Lightning protection materials shall be coordinated with building construction materials to ensure compatibility. Aluminum lightning protection materials shall not be embedded in concrete or masonry, installed on or below copper surfaces, or used for the in-ground system. Copper lightning protection materials shall not installed on aluminum surfaces.

4. Strike termination devices shall be provided to place the entire structure under a zone of protection as defined in the Standards. Air terminals shall project a minimum of 10 inches above protected areas or objects. Air terminals shall be located within 2 feet of exposed corners and roof edges.

5. Metallic bodies having a thickness of 3/16 inches or greater may serve as strike termination devices without the addition of air terminals. These bodies shall be made a part of the lightning protection systems by connections according to the Standards using main size conductors and bonding fittings with three square inches of surface contact area.

6. Cable conductors shall provide a two-way path from strike termination devices horizontally and downward to connections with the ground system. Cable conductors shall be free of excessive spikes and sharp bends. No bend of a conductor shall form a final included angle of less than no 90 degrees or have a radius of bend less than 8 inches. Structural elements and design features shall be used whenever possible to minimize the visual impact of exposed conductors.

7. Cable down conductors may be concealed within the building construction or enclosed within PVC conduit from roof to grade level. Down conductors shall be spaced at intervals averaging not more than 100 feet around the protected down conductors. Where down conductors are exposed to environmental hazards at grade level, guards shall be used to protect the conductor to a point 6 feet above grade.

8. In the case of structural steel frame construction, cable down conductors may be omitted and roof conductors shall be connected per design compliant with NFPA 780 UL 96A and LPI 175.

9. Exposed cable conductors shall be secured to the structure at intervals not exceeding 3 feet 0 inches. Fasteners shall be welded or bolted to steel banding and tank, and be electrolytically compatible with existing materials. Galvanized or plated steels are not acceptable.

10. Connectors and splicers shall be of suitable configuration and type for the intended application and of the same material s the conductors or of electrolytically compatible materials.

11. Ground terminations suitable for the soil conditions shall be provided for each downlead conductor. Where the structural steel framework is utilized as main conductors for the system, perimeter columns shall be connected to the grounding system at intervals averaging 60 feet or less on the protected perimeter. For any structure in excess of 60 feet in vertical elevation above grade, a ground loop interconnecting all ground terminals and other building grounded systems shall be provided.

12. Common interconnection of all grounded systems within the structure shall be accomplished using main size conductors and fittings. Grounded metal bodies located within the calculated bonding distance s determined by the formulas of the Standards shall be bonded to the system using properly sized bonding conductors.

13. Surge suppression shall be provided at every system entrance to the structure to prevent massive lightning overvoltages from entering the structure. Additional surge protection for internal electronic equipment may be determined through cost-benefit analysis by a trained engineer.

3.01 EXECUTION

A. The installation shall comply with the requirements of NFPA 780, UL96A and LPI 175.

B. Acceptable installers—the installing contracting company shall be listed with the Lightning protection Institute and Underwriters' Laboratories, Inc. The installation contractor shall have personnel on staff Certified by the LPI as a Master Installer or Master Installer-Designer of lightning protection systems. LPI qualified staff shall provide supervision of the installation to the Standards.

4.01 INSTALLATION

A. The installation of the lightning protection system components shall be done in a neat and workmanlike manner.

B. Steel tank penetrations required for connections shall be made using 316 stainless steel boots welded to the structure designed for this purpose, and be waterproof. The contractor shall furnish the methods and materials required at penetrations of the lightning protection components and any other materials or preparations required for lighting conductor runs to ensure compatibility with the steel water tank.

C. LPI certification requires a signature by a representative of the owner at multiple stages of installation and by their third party field staff. UL certification requires inspection by their third party field staff after completion of the installation. Upon completion of the lightning protection installation, the installing contractor shall provide to the owner an as-built drawing of the system, along with copies of the LPI or UL Certificates of completion.

D. If the existing structure does have a lightning protection system, the contractor shall advise the owner of any additional work required on the existing system to bring it into compliance with current Standards and thus qualify for LPI or UL certification.

END OF SECTION 33 79 93

SECTION 33 81 00 ANTENNAS AND ACCESSORIES

PART 1 –GENERAL

1.01 SUMMARY

A. Division 0 and 1, as listed in the Table of Contents, apply here.

B. Refer to other Sections of these Specifications to determine the type and extent of work therein affecting the work of this trade whether or not such work is specifically mentioned in this Section.

C. Provide a copy of all applicable Drawings, including Shop Drawings, and Specifications at the site during all work.

D. This section specifies the installation of the new MPD supplied antennas on the water tank, and the removal of existing antennas on the upper parapet.

1.02 SUBMITTALS

A complete shop drawing set shall be submitted to the architect and engineer for approval prior to commencement of the installation. The shop drawing will show the extent of the system layout designed for the structure along with details of the products to be used in the installation.

1.03 QUALITY ASSURANCE

A. The contractor shall have a minimum of three years experience in the installation of similar antennas on high rise structures.

B. Equipment to comply with FCC radiation exposure limits See manufacturer's specifications for proximity and duration of time exposure for each antenna type. .

C. Antenna installation to comply with applicable FCC rules.

D. Antennas to comply with UL 60950, latest edition.

2.01 PRODUCTS

A. New antennas to be supplied by the Milwaukee Police Department. Antenna types to be supplied are as follows:

1. 220-3AN Super Stationmaster™ Omni Fiberglass Antenna, Direct ground protected. (2 total, located per plans)

2. 220-7N Super Stationmaster™ Omni Fiberglass Antenna, Direct ground protected. (3 total, located per plans)

3. 220-5N Super Stationmaster™ Omni Fiberglass Antenna, Direct ground protected. (1 total, located per plans)

4. BMR12-H-B1 Penetrator™ Antenna 806-869, 17.5dBi, Dual, Top Rod grounded to base Mount. (2 total, located per plans)

5. SSB 2424SB Mag Grid Antenna, Direct ground protected.

B. New cabling for antennas to be supplied by the Milwaukee Police Department.

C. Connectors to be stainless steel 316, gauge and type and sized as per antenna manufacturer's specifications. Connectors to be provided by Contractor.

D. Wall Plate to be FABRICATED, see plans. Provide stainless steel entry wall plate with stainless steel fasteners. Contractor to provide one wall plate at each antenna location.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine new banding and attachments to ensure that conditions for installing antennas are acceptable.

B. Verify plan location of all new antennas.

3.02 PREPARATION

A. Receive antennas and cabling from Milwaukee Police Department. Check and verify that all antennas and parts needed for installation have been received. Store antennas in secure area, protected from damage, and off of floor, protected from elements.

B. Provide grounding of antennas per Section 33 79 93 and manufacturer's requirements.

3.03 INSTALLATION

A. Follow manufacturer's instructions for installation of antennas. Antennas to be Pole mounted.

B. Install lightning protection per manufacturer's requirements and this specification.

C. Locate area for access wall plate after antenna is installed, install per plans. Apply sealant around edge of entry plate and water tank steel.

D. Locate area inside structure where cabling is to exit, to run along concrete walls. Location to be at or under catwalk, and be coordinated with and acceptable to Milwaukee Police Department. Cut and remove section of water tank to allow cabling to go through.

E. Attach cabling to antenna per manufacturer's specifications, and run through rubber boot, and exit through hole in water tank. Cable path to be the same as existing cabling. Extend cabling into MPD electrical/data room, leaving slack in cable which will allow moving of cabling to any location in the MPD electrical/data room.

F. After all new antennas have been installed, contact MPD regarding decommissioning of existing antennas and activation of new antennas. MPD will activate and commission new antennas, and decommission existing antennas.

G. After new antennas are operational, remove decommissioned antennas and existing, unused cabling and dispose of same.

3.04 WARRANTY

Provide one year installer's warranty for all antenna installation.

END OF SECTION 33 81 00