

The background of the entire page is a light gray topographic map with white contour lines. The map shows various elevations and shapes, typical of a terrain map. The text is overlaid on this background.

**BIRCH MEADOW PARK
RESTROOM
& SUPPORT
BUILDING**

TOWN OF READING

16 Lowell Street | Reading, MA 01867

CONTRACT 23-21

**BID DOCUMENTS
PROJECT MANUAL**

JANUARY 27, 2023

PREPARED BY:

ACTIVITAS

landscape architecture | civil engineering

PROJECT TEAM

OWNER:

Town of Reading
16 Lowell Street
Reading, MA 01867

ARCHITECT:

OCO Architecture :: Design
709 Hingham Street
Hingham, MA 02043
(617) 699-8395

STRUCUTRAL ENGINEER:

SSB Engineering
146 Front Street Suite 301
Scituate, MA 02066
(857) 504-1065

MECHANICAL & PLUMBING ENGINEER:

Building Engineering Resources, Inc.
66 Main Street
North Easton, MA 02356
(508) 230-0260

ELECTRICAL ENGINEER:

NV5
200 Brickstone Square
Andover, MA 01810
(978) 296-6232

LANDSCAPE ARCHITECT/CIVIL ENGINEER:

Activitas
70 Milton Street
Dedham, MA 02026
(781) 326-2600

SURVEY:

Reed Land Surveying, Inc.
109 Rhode Island Road, Suite 4A
Lakeville, MA 02347
(508) 923-1181

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

TABLE OF CONTENTS

DIVISION 00 00 00 - PROCUREMENTS AND CONTRACTING REQUIREMENTS **

| | |
|-------------------|----------------------------------|
| INVITATION TO BID | |
| SECTION I | GENERAL INSTRUCTIONS FOR BIDDERS |
| SECTION II | FORM OF GENERAL BID |
| SECTION III | REQUIRED FORMS |
| SECTION IV | CONTRACT AGREEMENT |
| SECTION V | GENERAL CONDITIONS |
| SECTION VI | SPECIFICATIONS |
| SECTION VII | PREVAILING WAGE RATES |
| SECTION VIII | APPENDIX |

**Provided by the Town of Reading

DIVISION 01 00 00 - GENERAL REQUIREMENTS

| | |
|------------------|--------------------------|
| SECTION 01 11 00 | SUMMARY OF WORK |
| SECTION 01 22 00 | UNIT PRICES |
| SECTION 01 23 00 | ALTERNATES |
| SECTION 01 31 19 | PROJECT MEETINGS |
| SECTION 01 33 00 | SUBMITTALS |
| SECTION 01 50 00 | TEMPORARY FACILITIES |
| SECTION 01 70 00 | PROJECT CLOSEOUT |
| SECTION 01 78 36 | WARRANTIES |
| SECTION 01 78 39 | PROJECT RECORD DOCUMENTS |

DIVISION 04 00 00 – MASONRY

| | |
|------------------|-----------------------|
| SECTION 04 22 00 | CONCRETE MASONRY UNIT |
|------------------|-----------------------|

DIVISION 07 00 00 – THERMAL AND MOISTURE PROTECTION

| | |
|------------------|---------------------------|
| SECTION 07 25 00 | WEATHER BARRIERS |
| SECTION 07 26 00 | UNDERSLAB VAPOR RETARDERS |
| SECTION 07 30 10 | ROOFING UNDERLAYMENT |
| SECTION 07 40 00 | METAL ROOF |

DIVISION 08 00 00 – OPENINGS

| | |
|------------------|------------------------|
| SECTION 08 11 10 | STEEL DOORS AND FRAMES |
| SECTION 08 71 00 | DOOR HARDWARE |

DIVISION 09 00 00 – FINISHES

| | |
|------------------|------------------|
| SECTION 09 91 00 | PAINING |
| SECTION 09 97 23 | CONCRETE SEALERS |

DIVISION 10 00 00 - SPECIALTIES

| | |
|------------------|----------------------|
| SECTION 10 28 00 | WASHROOM ACCESSORIES |
|------------------|----------------------|

DIVISION 22 00 00 - PLUMBING

| | |
|------------------|----------|
| SECTION 22 00 00 | PLUMBING |
|------------------|----------|

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

DIVISION 26 00 00 - ELECTRICAL

SECTION 26 00 00

ELECTRICAL

END OF TABLE OF CONTENTS

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 00 00 00

PROCUREMENT
AND CONTRACTING
REQUIREMENTS

ACTIVITAS



MAURA HEALEY
Governor

KIM DRISCOLL
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H

LAUREN JONES
Secretary

MICHAEL FLANAGAN
Director

Awarding Authority: Town of Reading
Contract Number: 23-21 **City/Town:** READING
Description of Work: Recreation Building to be built with restrooms and concession area, etc.

Job Location: 0 Birch Meadow Drive, Reading, MA 01867

Information about Prevailing Wage Schedules for Awarding Authorities and Contractors

- **The wage rates will remain in effect for the duration of the project, except in the case of multi-year public construction projects. For construction projects lasting longer than one year, awarding authorities must request an updated wage schedule no later than two weeks before the anniversary of the date the contract was executed by the awarding authority and the general contractor.** For multi-year CM AT RISK projects, the awarding authority must request an annual update no later than two weeks before the anniversary date, determined as the earlier of: (a) the execution date of the GMP Amendment, or (b) the execution date of the first amendment to permit procurement of construction services. The annual update requirement is not applicable to 27F "rental of equipment" contracts. **The updated wage schedule must be provided to all contractors, including general and sub-contractors, working on the construction project.**
- This wage schedule applies only to the specific project referenced at the top of this page and uniquely identified by the "Wage Request Number" on all pages of this schedule.
- An Awarding Authority must request an updated wage schedule if it has not opened bids or selected a contractor within 90 days of the date of issuance of the wage schedule. For CM AT RISK projects (bid pursuant to G.L. c.149A), the earlier of: (a) the execution date of the GMP Amendment, or (b) the bid for the first construction scope of work must be within 90-days of the wage schedule issuance date.
- The wage schedule shall be incorporated in any advertisement or call for bids for the project as required by M.G.L. c. 149, § 27. The wage schedule shall be made a part of the contract awarded for the project. The wage schedule must be posted in a conspicuous place at the work site for the life of the project in accordance with M.G.L. c. 149 § 27. The wages listed on the wage schedule must be paid to employees performing construction work on the project whether they are employed by the prime contractor, a filed sub-bidder, or a sub-contractor.
- Apprentices working on the project are required to be registered with the Massachusetts Division of Apprentice Standards (DAS). Apprentices must keep their apprentice identification card on their persons during all work hours on the project. An apprentice registered with DAS may be paid the lower apprentice wage rate at the applicable step as provided on the prevailing wage schedule. **Any apprentice not registered with DAS regardless of whether they are registered with another federal, state, local, or private agency must be paid the journeyworker's rate.**
- Every contractor or subcontractor working on the construction project must submit weekly payroll reports and a Statement of Compliance directly to the awarding authority by mail or email and keep them on file for three years. Each weekly payroll report must contain: the employee's name, address, occupational classification, hours worked, and wages paid. Do not submit weekly payroll reports to DLS. For a sample payroll reporting form go to <http://www.mass.gov/dols/pw>.
- Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at (617) 626-6953.
- Contractors must obtain the wage schedules from awarding authorities. Failure of a contractor or subcontractor to pay the prevailing wage rates listed on the wage schedule to all employees who perform construction work on the project is a violation of the law and subjects the contractor or subcontractor to civil and criminal penalties.
- Employees not receiving the prevailing wage rate set forth on the wage schedule may file a complaint with the Fair Labor Division of the office of the Attorney General at (617) 727-3465.

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|-----------------------|------------------|---------------|----------------|----------------------------------|-------------------|
| Construction | | | | | | |
| (2 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$35.95 | \$13.41 | \$16.01 | \$0.00 | \$65.37 |
| (3 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.02 | \$13.41 | \$16.01 | \$0.00 | \$65.44 |
| (4 & 5 AXLE) DRIVER - EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.14 | \$13.41 | \$16.01 | \$0.00 | \$65.56 |
| ADS/SUBMERSIBLE PILOT <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> | 08/01/2020 | \$103.05 | \$9.40 | \$23.12 | \$0.00 | \$135.57 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | |
| AIR TRACK OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.93 | \$9.10 | \$17.57 | \$0.00 | \$70.60 |
| | 06/01/2023 | \$44.93 | \$9.10 | \$17.57 | \$0.00 | \$71.60 |
| | 12/01/2023 | \$46.18 | \$9.10 | \$17.57 | \$0.00 | \$72.85 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| AIR TRACK OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$43.33 | \$9.35 | \$17.82 | \$0.00 | \$70.50 |
| | 06/01/2023 | \$44.33 | \$9.35 | \$17.82 | \$0.00 | \$71.50 |
| | 12/01/2023 | \$45.58 | \$9.35 | \$17.82 | \$0.00 | \$72.75 |
| | 06/01/2024 | \$47.06 | \$9.35 | \$17.82 | \$0.00 | \$74.23 |
| | 12/01/2024 | \$48.53 | \$9.35 | \$17.82 | \$0.00 | \$75.70 |
| | 06/01/2025 | \$50.03 | \$9.35 | \$17.82 | \$0.00 | \$77.20 |
| | 12/01/2025 | \$51.53 | \$9.35 | \$17.82 | \$0.00 | \$78.70 |
| | 06/01/2026 | \$53.08 | \$9.35 | \$17.82 | \$0.00 | \$80.25 |
| | 12/01/2026 | \$54.58 | \$9.35 | \$17.82 | \$0.00 | \$81.75 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |
| ASBESTOS REMOVER - PIPE / MECH. EQUIPT. <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i> | 12/01/2020 | \$38.10 | \$12.80 | \$9.45 | \$0.00 | \$60.35 |
| ASPHALT RAKER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| ASPHALT RAKER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| | 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| BACKHOE/FRONT-END LOADER <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| | 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| BARCO-TYPE JUMPING TAMPER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| BLOCK PAVER, RAMMER / CURB SETTER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.93 | \$9.10 | \$17.57 | \$0.00 | \$70.60 |
| | 06/01/2023 | \$44.93 | \$9.10 | \$17.57 | \$0.00 | \$71.60 |
| | 12/01/2023 | \$46.18 | \$9.10 | \$17.57 | \$0.00 | \$72.85 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| BLOCK PAVER, RAMMER / CURB SETTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$43.33 | \$9.35 | \$17.82 | \$0.00 | \$70.50 |
| | 06/01/2023 | \$44.33 | \$9.35 | \$17.82 | \$0.00 | \$71.50 |
| | 12/01/2023 | \$45.58 | \$9.35 | \$17.82 | \$0.00 | \$72.75 |
| | 06/01/2024 | \$47.06 | \$9.35 | \$17.82 | \$0.00 | \$74.23 |
| | 12/01/2024 | \$48.53 | \$9.35 | \$17.82 | \$0.00 | \$75.70 |
| | 06/01/2025 | \$50.03 | \$9.35 | \$17.82 | \$0.00 | \$77.20 |
| | 12/01/2025 | \$51.53 | \$9.35 | \$17.82 | \$0.00 | \$78.70 |
| | 06/01/2026 | \$53.08 | \$9.35 | \$17.82 | \$0.00 | \$80.25 |
| | 12/01/2026 | \$54.58 | \$9.35 | \$17.82 | \$0.00 | \$81.75 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |
| BOILER MAKER <i>BOILERMAKERS LOCAL 29</i> | 01/01/2023 | \$47.37 | \$7.07 | \$20.31 | \$0.00 | \$74.75 |
| | 01/01/2024 | \$48.12 | \$7.07 | \$20.60 | \$0.00 | \$75.79 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BOILERMAKER - Local 29

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 65 | \$30.79 | \$7.07 | \$13.22 | \$0.00 | \$51.08 |
| 2 | 65 | \$30.79 | \$7.07 | \$13.22 | \$0.00 | \$51.08 |
| 3 | 70 | \$33.16 | \$7.07 | \$14.23 | \$0.00 | \$54.46 |
| 4 | 75 | \$35.53 | \$7.07 | \$15.24 | \$0.00 | \$57.84 |
| 5 | 80 | \$37.90 | \$7.07 | \$16.25 | \$0.00 | \$61.22 |
| 6 | 85 | \$40.26 | \$7.07 | \$17.28 | \$0.00 | \$64.61 |
| 7 | 90 | \$42.63 | \$7.07 | \$18.28 | \$0.00 | \$67.98 |
| 8 | 95 | \$45.00 | \$7.07 | \$19.32 | \$0.00 | \$71.39 |

Effective Date - 01/01/2024

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 65 | \$31.28 | \$7.07 | \$13.22 | \$0.00 | \$51.57 |
| 2 | 65 | \$31.28 | \$7.07 | \$13.22 | \$0.00 | \$51.57 |
| 3 | 70 | \$33.68 | \$7.07 | \$14.23 | \$0.00 | \$54.98 |
| 4 | 75 | \$36.09 | \$7.07 | \$15.24 | \$0.00 | \$58.40 |
| 5 | 80 | \$38.50 | \$7.07 | \$16.25 | \$0.00 | \$61.82 |
| 6 | 85 | \$40.90 | \$7.07 | \$17.28 | \$0.00 | \$65.25 |
| 7 | 90 | \$43.31 | \$7.07 | \$18.28 | \$0.00 | \$68.66 |
| 8 | 95 | \$45.71 | \$7.07 | \$19.32 | \$0.00 | \$72.10 |

Notes:

Apprentice to Journeyworker Ratio:1:4

| | | | | | | |
|--|------------|---------|---------|---------|--------|----------|
| BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING) | 08/01/2022 | \$59.15 | \$11.49 | \$22.34 | \$0.00 | \$92.98 |
| BRICKLAYERS LOCAL 3 (LYNN) | 02/01/2023 | \$60.35 | \$11.49 | \$22.34 | \$0.00 | \$94.18 |
| | 08/01/2023 | \$62.40 | \$11.49 | \$22.34 | \$0.00 | \$96.23 |
| | 02/01/2024 | \$63.65 | \$11.49 | \$22.34 | \$0.00 | \$97.48 |
| | 08/01/2024 | \$65.75 | \$11.49 | \$22.34 | \$0.00 | \$99.58 |
| | 02/01/2025 | \$67.05 | \$11.49 | \$22.34 | \$0.00 | \$100.88 |
| | 08/01/2025 | \$69.20 | \$11.49 | \$22.34 | \$0.00 | \$103.03 |
| | 02/01/2026 | \$70.55 | \$11.49 | \$22.34 | \$0.00 | \$104.38 |
| | 08/01/2026 | \$72.75 | \$11.49 | \$22.34 | \$0.00 | \$106.58 |
| | 02/01/2027 | \$74.15 | \$11.49 | \$22.34 | \$0.00 | \$107.98 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - BRICK/PLASTER/CEMENT MASON - Local 3 Lynn

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$29.58 | \$11.49 | \$22.34 | \$0.00 | \$63.41 |
| 2 | 60 | \$35.49 | \$11.49 | \$22.34 | \$0.00 | \$69.32 |
| 3 | 70 | \$41.41 | \$11.49 | \$22.34 | \$0.00 | \$75.24 |
| 4 | 80 | \$47.32 | \$11.49 | \$22.34 | \$0.00 | \$81.15 |
| 5 | 90 | \$53.24 | \$11.49 | \$22.34 | \$0.00 | \$87.07 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$30.18 | \$11.49 | \$22.34 | \$0.00 | \$64.01 |
| 2 | 60 | \$36.21 | \$11.49 | \$22.34 | \$0.00 | \$70.04 |
| 3 | 70 | \$42.25 | \$11.49 | \$22.34 | \$0.00 | \$76.08 |
| 4 | 80 | \$48.28 | \$11.49 | \$22.34 | \$0.00 | \$82.11 |
| 5 | 90 | \$54.32 | \$11.49 | \$22.34 | \$0.00 | \$88.15 |

Notes:

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| BULLDOZER/GRADER/SCRAPER <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| CAISSON & UNDERPINNING BOTTOM MAN <i>LABORERS - FOUNDATION AND MARINE</i> | 12/01/2021 | \$42.33 | \$9.10 | \$17.72 | \$0.00 | \$69.15 |
|---|------------|---------|--------|---------|--------|---------|

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| CAISSON & UNDERPINNING LABORER <i>LABORERS - FOUNDATION AND MARINE</i> | 12/01/2021 | \$41.18 | \$9.10 | \$17.72 | \$0.00 | \$68.00 |
|--|------------|---------|--------|---------|--------|---------|

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| CAISSON & UNDERPINNING TOP MAN <i>LABORERS - FOUNDATION AND MARINE</i> | 12/01/2021 | \$41.18 | \$9.10 | \$17.72 | \$0.00 | \$68.00 |
|--|------------|---------|--------|---------|--------|---------|

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| CARBIDE CORE DRILL OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| CARPENTER <i>CARPENTERS -ZONE 2 (Eastern Massachusetts)</i> | 09/01/2022 | \$45.18 | \$8.68 | \$19.97 | \$0.00 | \$73.83 |
| | 03/01/2023 | \$45.78 | \$8.68 | \$19.97 | \$0.00 | \$74.43 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER - Zone 2 Eastern MA

Effective Date - 09/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.59 | \$8.68 | \$1.73 | \$0.00 | \$33.00 |
| 2 | 60 | \$27.11 | \$8.68 | \$1.73 | \$0.00 | \$37.52 |
| 3 | 70 | \$31.63 | \$8.68 | \$14.78 | \$0.00 | \$55.09 |
| 4 | 75 | \$33.89 | \$8.68 | \$14.78 | \$0.00 | \$57.35 |
| 5 | 80 | \$36.14 | \$8.68 | \$16.51 | \$0.00 | \$61.33 |
| 6 | 80 | \$36.14 | \$8.68 | \$16.51 | \$0.00 | \$61.33 |
| 7 | 90 | \$40.66 | \$8.68 | \$18.24 | \$0.00 | \$67.58 |
| 8 | 90 | \$40.66 | \$8.68 | \$18.24 | \$0.00 | \$67.58 |

Effective Date - 03/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.89 | \$8.68 | \$1.73 | \$0.00 | \$33.30 |
| 2 | 60 | \$27.47 | \$8.68 | \$1.73 | \$0.00 | \$37.88 |
| 3 | 70 | \$32.05 | \$8.68 | \$14.78 | \$0.00 | \$55.51 |
| 4 | 75 | \$34.34 | \$8.68 | \$14.78 | \$0.00 | \$57.80 |
| 5 | 80 | \$36.62 | \$8.68 | \$16.51 | \$0.00 | \$61.81 |
| 6 | 80 | \$36.62 | \$8.68 | \$16.51 | \$0.00 | \$61.81 |
| 7 | 90 | \$41.20 | \$8.68 | \$18.24 | \$0.00 | \$68.12 |
| 8 | 90 | \$41.20 | \$8.68 | \$18.24 | \$0.00 | \$68.12 |

Notes:

% Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$30.71/ 3&4 \$36.93/ 5&6 \$56.82/ 7&8 \$63.06

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|--------------------------------|------------|---------|--------|--------|--------|---------|
| CARPENTER WOOD FRAME | 04/01/2022 | \$23.66 | \$7.21 | \$4.80 | \$0.00 | \$35.67 |
| CARPENTERS-ZONE 3 (Wood Frame) | 04/01/2023 | \$24.16 | \$7.21 | \$4.80 | \$0.00 | \$36.17 |

All Aspects of New Wood Frame Work

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CARPENTER (Wood Frame) - Zone 3

Effective Date - 04/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$14.20 | \$7.21 | \$0.00 | \$0.00 | \$21.41 |
| 2 | 60 | \$14.20 | \$7.21 | \$0.00 | \$0.00 | \$21.41 |
| 3 | 65 | \$15.38 | \$7.21 | \$0.00 | \$0.00 | \$22.59 |
| 4 | 70 | \$16.56 | \$7.21 | \$0.00 | \$0.00 | \$23.77 |
| 5 | 75 | \$17.75 | \$7.21 | \$3.80 | \$0.00 | \$28.76 |
| 6 | 80 | \$18.93 | \$7.21 | \$3.80 | \$0.00 | \$29.94 |
| 7 | 85 | \$20.11 | \$7.21 | \$3.80 | \$0.00 | \$31.12 |
| 8 | 90 | \$21.29 | \$7.21 | \$3.80 | \$0.00 | \$32.30 |

Effective Date - 04/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$14.50 | \$7.21 | \$0.00 | \$0.00 | \$21.71 |
| 2 | 60 | \$14.50 | \$7.21 | \$0.00 | \$0.00 | \$21.71 |
| 3 | 65 | \$15.70 | \$7.21 | \$0.00 | \$0.00 | \$22.91 |
| 4 | 70 | \$16.91 | \$7.21 | \$0.00 | \$0.00 | \$24.12 |
| 5 | 75 | \$18.12 | \$7.21 | \$3.80 | \$0.00 | \$29.13 |
| 6 | 80 | \$19.33 | \$7.21 | \$3.80 | \$0.00 | \$30.34 |
| 7 | 85 | \$20.54 | \$7.21 | \$3.80 | \$0.00 | \$31.55 |
| 8 | 90 | \$21.74 | \$7.21 | \$3.80 | \$0.00 | \$32.75 |

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$17.86/ 3&4 \$20.22/ 5&6 \$27.57/ 7&8 \$29.94

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|----------------------------|------------|---------|---------|---------|--------|---------|
| CEMENT MASONRY/PLASTERING | 01/01/2023 | \$49.45 | \$12.75 | \$22.74 | \$0.87 | \$85.81 |
| BRICKLAYERS LOCAL 3 (LYNN) | 07/01/2023 | \$50.59 | \$12.75 | \$22.74 | \$0.87 | \$86.95 |
| | 01/01/2024 | \$51.73 | \$12.75 | \$22.74 | \$0.87 | \$88.09 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - CEMENT MASONRY/PLASTERING - Eastern Mass (Lynn)

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$24.73 | \$12.75 | \$15.49 | \$0.00 | \$52.97 |
| 2 | 60 | \$29.67 | \$12.75 | \$22.74 | \$0.87 | \$66.03 |
| 3 | 65 | \$32.14 | \$12.75 | \$22.74 | \$0.87 | \$68.50 |
| 4 | 70 | \$34.62 | \$12.75 | \$22.74 | \$0.87 | \$70.98 |
| 5 | 75 | \$37.09 | \$12.75 | \$22.74 | \$0.87 | \$73.45 |
| 6 | 80 | \$39.56 | \$12.75 | \$22.74 | \$0.87 | \$75.92 |
| 7 | 90 | \$44.51 | \$12.75 | \$22.74 | \$0.87 | \$80.87 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$25.30 | \$12.75 | \$15.49 | \$0.00 | \$53.54 |
| 2 | 60 | \$30.35 | \$12.75 | \$22.74 | \$0.87 | \$66.71 |
| 3 | 65 | \$32.88 | \$12.75 | \$22.74 | \$0.87 | \$69.24 |
| 4 | 70 | \$35.41 | \$12.75 | \$22.74 | \$0.87 | \$71.77 |
| 5 | 75 | \$37.94 | \$12.75 | \$22.74 | \$0.87 | \$74.30 |
| 6 | 80 | \$40.47 | \$12.75 | \$22.74 | \$0.87 | \$76.83 |
| 7 | 90 | \$45.53 | \$12.75 | \$22.74 | \$0.87 | \$81.89 |

Notes:
Steps 3,4 are 500 hrs. All other steps are 1,000 hrs.

Apprentice to Journeyworker Ratio:1:3

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| CHAIN SAW OPERATOR LABORERS - ZONE 1 | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|---------|---------|--------|---------|
| CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES OPERATING ENGINEERS LOCAL 4 | 12/01/2022 | \$54.68 | \$14.25 | \$16.05 | \$0.00 | \$84.98 |
| | 06/01/2023 | \$55.95 | \$14.25 | \$16.05 | \$0.00 | \$86.25 |
| | 12/01/2023 | \$57.23 | \$14.25 | \$16.05 | \$0.00 | \$87.53 |
| | 06/01/2024 | \$58.55 | \$14.25 | \$16.05 | \$0.00 | \$88.85 |
| | 12/01/2024 | \$60.03 | \$14.25 | \$16.05 | \$0.00 | \$90.33 |
| | 06/01/2025 | \$61.36 | \$14.25 | \$16.05 | \$0.00 | \$91.66 |
| | 12/01/2025 | \$62.83 | \$14.25 | \$16.05 | \$0.00 | \$93.13 |
| | 06/01/2026 | \$64.16 | \$14.25 | \$16.05 | \$0.00 | \$94.46 |
| | 12/01/2026 | \$65.64 | \$14.25 | \$16.05 | \$0.00 | \$95.94 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| COMPRESSOR OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$35.08 | \$14.25 | \$16.05 | \$0.00 | \$65.38 |
| | 06/01/2023 | \$35.90 | \$14.25 | \$16.05 | \$0.00 | \$66.20 |
| | 12/01/2023 | \$36.72 | \$14.25 | \$16.05 | \$0.00 | \$67.02 |
| | 06/01/2024 | \$37.57 | \$14.25 | \$16.05 | \$0.00 | \$67.87 |
| | 12/01/2024 | \$38.52 | \$14.25 | \$16.05 | \$0.00 | \$68.82 |
| | 06/01/2025 | \$39.37 | \$14.25 | \$16.05 | \$0.00 | \$69.67 |
| | 12/01/2025 | \$40.32 | \$14.25 | \$16.05 | \$0.00 | \$70.62 |
| | 06/01/2026 | \$41.18 | \$14.25 | \$16.05 | \$0.00 | \$71.48 |
| | 12/01/2026 | \$42.13 | \$14.25 | \$16.05 | \$0.00 | \$72.43 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| DELEADER (BRIDGE) <i>PAINTERS LOCAL 35 - ZONE 2</i> | 01/01/2023 | \$56.06 | \$8.65 | \$23.05 | \$0.00 | \$87.76 |
| | 07/01/2023 | \$57.26 | \$8.65 | \$23.05 | \$0.00 | \$88.96 |
| | 01/01/2024 | \$58.46 | \$8.65 | \$23.05 | \$0.00 | \$90.16 |
| | 07/01/2024 | \$59.66 | \$8.65 | \$23.05 | \$0.00 | \$91.36 |
| | 01/01/2025 | \$60.86 | \$8.65 | \$23.05 | \$0.00 | \$92.56 |

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$28.03 | \$8.65 | \$0.00 | \$0.00 | \$36.68 |
| 2 | 55 | \$30.83 | \$8.65 | \$6.27 | \$0.00 | \$45.75 |
| 3 | 60 | \$33.64 | \$8.65 | \$6.84 | \$0.00 | \$49.13 |
| 4 | 65 | \$36.44 | \$8.65 | \$7.41 | \$0.00 | \$52.50 |
| 5 | 70 | \$39.24 | \$8.65 | \$19.63 | \$0.00 | \$67.52 |
| 6 | 75 | \$42.05 | \$8.65 | \$20.20 | \$0.00 | \$70.90 |
| 7 | 80 | \$44.85 | \$8.65 | \$20.77 | \$0.00 | \$74.27 |
| 8 | 90 | \$50.45 | \$8.65 | \$21.91 | \$0.00 | \$81.01 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$28.63 | \$8.65 | \$0.00 | \$0.00 | \$37.28 |
| 2 | 55 | \$31.49 | \$8.65 | \$6.27 | \$0.00 | \$46.41 |
| 3 | 60 | \$34.36 | \$8.65 | \$6.84 | \$0.00 | \$49.85 |
| 4 | 65 | \$37.22 | \$8.65 | \$7.41 | \$0.00 | \$53.28 |
| 5 | 70 | \$40.08 | \$8.65 | \$19.63 | \$0.00 | \$68.36 |
| 6 | 75 | \$42.95 | \$8.65 | \$20.20 | \$0.00 | \$71.80 |
| 7 | 80 | \$45.81 | \$8.65 | \$20.77 | \$0.00 | \$75.23 |
| 8 | 90 | \$51.53 | \$8.65 | \$21.91 | \$0.00 | \$82.09 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| DEMO: ADZEMAN <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.33 | \$9.10 | \$17.57 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$44.33 | \$9.10 | \$17.57 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.58 | \$9.10 | \$17.57 | \$0.00 | \$72.25 |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DEMO: BACKHOE/LOADER/HAMMER OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$44.33 | \$9.10 | \$17.57 | \$0.00 | \$71.00 |
| | 06/01/2023 | \$45.33 | \$9.10 | \$17.57 | \$0.00 | \$72.00 |
| | 12/01/2023 | \$46.58 | \$9.10 | \$17.57 | \$0.00 | \$73.25 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DEMO: BURNERS <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$44.08 | \$9.10 | \$17.57 | \$0.00 | \$70.75 |
| | 06/01/2023 | \$45.08 | \$9.10 | \$17.57 | \$0.00 | \$71.75 |
| | 12/01/2023 | \$46.33 | \$9.10 | \$17.57 | \$0.00 | \$73.00 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DEMO: CONCRETE CUTTER/SAWYER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$44.33 | \$9.10 | \$17.57 | \$0.00 | \$71.00 |
| | 06/01/2023 | \$45.33 | \$9.10 | \$17.57 | \$0.00 | \$72.00 |
| | 12/01/2023 | \$46.58 | \$9.10 | \$17.57 | \$0.00 | \$73.25 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DEMO: JACKHAMMER OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$44.08 | \$9.10 | \$17.57 | \$0.00 | \$70.75 |
| | 06/01/2023 | \$45.08 | \$9.10 | \$17.57 | \$0.00 | \$71.75 |
| | 12/01/2023 | \$46.33 | \$9.10 | \$17.57 | \$0.00 | \$73.00 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DEMO: WRECKING LABORER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.33 | \$9.10 | \$17.57 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$44.33 | \$9.10 | \$17.57 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.58 | \$9.10 | \$17.57 | \$0.00 | \$72.25 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| DIRECTIONAL DRILL MACHINE OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| DIVER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> | 08/01/2020 | \$68.70 | \$9.40 | \$23.12 | \$0.00 | \$101.22 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | |
| DIVER TENDER <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> | 08/01/2020 | \$49.07 | \$9.40 | \$23.12 | \$0.00 | \$81.59 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | |
| DIVER TENDER (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> | 08/01/2020 | \$73.60 | \$9.40 | \$23.12 | \$0.00 | \$106.12 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | |
| DIVER/SLURRY (EFFLUENT) <i>PILE DRIVER LOCAL 56 (ZONE 1)</i> | 08/01/2020 | \$103.05 | \$9.40 | \$23.12 | \$0.00 | \$135.57 |
| For apprentice rates see "Apprentice- PILE DRIVER" | | | | | | |
| DRAWBRIDGE OPERATOR (Construction) <i>DRAWBRIDGE - SEIU LOCAL 888</i> | 07/01/2020 | \$26.77 | \$6.67 | \$3.93 | \$0.16 | \$37.53 |
| ELECTRICIAN <i>ELECTRICIANS LOCAL 103</i> | 09/01/2022 | \$58.28 | \$13.00 | \$21.35 | \$0.00 | \$92.63 |
| | 03/01/2023 | \$59.23 | \$13.00 | \$21.63 | \$0.00 | \$93.86 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ELECTRICIAN - Local 103

Effective Date - 09/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 40 | \$23.31 | \$13.00 | \$0.70 | \$0.00 | \$37.01 |
| 2 | 40 | \$23.31 | \$13.00 | \$0.70 | \$0.00 | \$37.01 |
| 3 | 45 | \$26.23 | \$13.00 | \$15.87 | \$0.00 | \$55.10 |
| 4 | 45 | \$26.23 | \$13.00 | \$15.87 | \$0.00 | \$55.10 |
| 5 | 50 | \$29.14 | \$13.00 | \$16.36 | \$0.00 | \$58.50 |
| 6 | 55 | \$32.05 | \$13.00 | \$16.86 | \$0.00 | \$61.91 |
| 7 | 60 | \$34.97 | \$13.00 | \$17.36 | \$0.00 | \$65.33 |
| 8 | 65 | \$37.88 | \$13.00 | \$17.86 | \$0.00 | \$68.74 |
| 9 | 70 | \$40.80 | \$13.00 | \$18.35 | \$0.00 | \$72.15 |
| 10 | 75 | \$43.71 | \$13.00 | \$18.86 | \$0.00 | \$75.57 |

Effective Date - 03/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 40 | \$23.69 | \$13.00 | \$0.71 | \$0.00 | \$37.40 |
| 2 | 40 | \$23.69 | \$13.00 | \$0.71 | \$0.00 | \$37.40 |
| 3 | 45 | \$26.65 | \$13.00 | \$16.13 | \$0.00 | \$55.78 |
| 4 | 45 | \$26.65 | \$13.00 | \$16.13 | \$0.00 | \$55.78 |
| 5 | 50 | \$29.62 | \$13.00 | \$16.63 | \$0.00 | \$59.25 |
| 6 | 55 | \$32.58 | \$13.00 | \$17.13 | \$0.00 | \$62.71 |
| 7 | 60 | \$35.54 | \$13.00 | \$17.63 | \$0.00 | \$66.17 |
| 8 | 65 | \$38.50 | \$13.00 | \$18.13 | \$0.00 | \$69.63 |
| 9 | 70 | \$41.46 | \$13.00 | \$18.62 | \$0.00 | \$73.08 |
| 10 | 75 | \$44.42 | \$13.00 | \$19.13 | \$0.00 | \$76.55 |

Notes :
 App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80

Apprentice to Journeyworker Ratio:2:3***

| | | | | | | |
|-------------------------------|------------|---------|---------|---------|--------|----------|
| ELEVATOR CONSTRUCTOR | 01/01/2022 | \$65.62 | \$16.03 | \$20.21 | \$0.00 | \$101.86 |
| ELEVATOR CONSTRUCTORS LOCAL 4 | | | | | | |

Apprentice - ELEVATOR CONSTRUCTOR - Local 4

Effective Date - 01/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$32.81 | \$16.03 | \$0.00 | \$0.00 | \$48.84 |
| 2 | 55 | \$36.09 | \$16.03 | \$20.21 | \$0.00 | \$72.33 |
| 3 | 65 | \$42.65 | \$16.03 | \$20.21 | \$0.00 | \$78.89 |
| 4 | 70 | \$45.93 | \$16.03 | \$20.21 | \$0.00 | \$82.17 |
| 5 | 80 | \$52.50 | \$16.03 | \$20.21 | \$0.00 | \$88.74 |

Notes:
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| ELEVATOR CONSTRUCTOR HELPER <i>ELEVATOR CONSTRUCTORS LOCAL 4</i> | 01/01/2022 | \$45.93 | \$16.03 | \$20.21 | \$0.00 | \$82.17 |
|---|------------|---------|---------|---------|--------|---------|

For apprentice rates see "Apprentice - ELEVATOR CONSTRUCTOR"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| FENCE & GUARD RAIL ERECTOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)"

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i> | 11/05/2022 | \$48.67 | \$14.25 | \$16.05 | \$0.00 | \$78.97 |
| | 05/01/2023 | \$49.91 | \$14.25 | \$16.05 | \$0.00 | \$80.21 |
| | 11/01/2023 | \$51.15 | \$14.25 | \$16.05 | \$0.00 | \$81.45 |
| | 05/01/2024 | \$52.39 | \$14.25 | \$16.05 | \$0.00 | \$82.69 |
| | 11/01/2024 | \$53.68 | \$14.25 | \$16.05 | \$0.00 | \$83.98 |
| | 05/01/2025 | \$55.12 | \$14.25 | \$16.05 | \$0.00 | \$85.42 |
| | 11/01/2025 | \$56.41 | \$14.25 | \$16.05 | \$0.00 | \$86.71 |
| | 05/01/2026 | \$57.85 | \$14.25 | \$16.05 | \$0.00 | \$88.15 |
| | 11/01/2026 | \$59.14 | \$14.25 | \$16.05 | \$0.00 | \$89.44 |
| | 05/01/2027 | \$60.57 | \$14.25 | \$16.05 | \$0.00 | \$90.87 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i> | 11/01/2022 | \$50.22 | \$14.25 | \$16.05 | \$0.00 | \$80.52 |
| | 05/01/2023 | \$51.47 | \$14.25 | \$16.05 | \$0.00 | \$81.77 |
| | 11/01/2023 | \$52.72 | \$14.25 | \$16.05 | \$0.00 | \$83.02 |
| | 05/01/2024 | \$53.97 | \$14.25 | \$16.05 | \$0.00 | \$84.27 |
| | 11/01/2024 | \$55.27 | \$14.25 | \$16.05 | \$0.00 | \$85.57 |
| | 05/01/2025 | \$56.72 | \$14.25 | \$16.05 | \$0.00 | \$87.02 |
| | 11/01/2025 | \$58.02 | \$14.25 | \$16.05 | \$0.00 | \$88.32 |
| | 05/01/2026 | \$59.47 | \$14.25 | \$16.05 | \$0.00 | \$89.77 |
| | 11/01/2026 | \$60.77 | \$14.25 | \$16.05 | \$0.00 | \$91.07 |
| | 05/01/2027 | \$62.22 | \$14.25 | \$16.05 | \$0.00 | \$92.52 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY <i>OPERATING ENGINEERS LOCAL 4</i> | 11/01/2022 | \$24.31 | \$14.25 | \$16.05 | \$0.00 | \$54.61 |
| | 05/01/2023 | \$25.05 | \$14.25 | \$16.05 | \$0.00 | \$55.35 |
| | 11/01/2023 | \$25.78 | \$14.25 | \$16.05 | \$0.00 | \$56.08 |
| | 05/01/2024 | \$26.51 | \$14.25 | \$16.05 | \$0.00 | \$56.81 |
| | 11/01/2024 | \$27.27 | \$14.25 | \$16.05 | \$0.00 | \$57.57 |
| | 05/01/2025 | \$28.12 | \$14.25 | \$16.05 | \$0.00 | \$58.42 |
| | 11/01/2025 | \$28.88 | \$14.25 | \$16.05 | \$0.00 | \$59.18 |
| | 05/01/2026 | \$29.73 | \$14.25 | \$16.05 | \$0.00 | \$60.03 |
| | 11/01/2026 | \$30.49 | \$14.25 | \$16.05 | \$0.00 | \$60.79 |
| | 05/01/2027 | \$31.34 | \$14.25 | \$16.05 | \$0.00 | \$61.64 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| FIRE ALARM INSTALLER <i>ELECTRICIANS LOCAL 103</i> | 09/01/2022 | \$58.28 | \$13.00 | \$21.35 | \$0.00 | \$92.63 |
| | 03/01/2023 | \$59.23 | \$13.00 | \$21.63 | \$0.00 | \$93.86 |
| For apprentice rates see "Apprentice- ELECTRICIAN" | | | | | | |
| FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING <i>ELECTRICIANS LOCAL 103</i> | 09/01/2022 | \$46.42 | \$13.00 | \$18.87 | \$0.00 | \$78.29 |
| | 03/01/2023 | \$48.34 | \$13.00 | \$19.01 | \$0.00 | \$80.35 |
| For apprentice rates see "Apprentice- TELECOMMUNICATIONS TECHNICIAN" | | | | | | |
| FIREMAN (ASST. ENGINEER) <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$43.54 | \$14.25 | \$16.05 | \$0.00 | \$73.84 |
| | 06/01/2023 | \$44.56 | \$14.25 | \$16.05 | \$0.00 | \$74.86 |
| | 12/01/2023 | \$45.57 | \$14.25 | \$16.05 | \$0.00 | \$75.87 |
| | 06/01/2024 | \$46.63 | \$14.25 | \$16.05 | \$0.00 | \$76.93 |
| | 12/01/2024 | \$47.81 | \$14.25 | \$16.05 | \$0.00 | \$78.11 |
| | 06/01/2025 | \$48.87 | \$14.25 | \$16.05 | \$0.00 | \$79.17 |
| | 12/01/2025 | \$50.04 | \$14.25 | \$16.05 | \$0.00 | \$80.34 |
| | 06/01/2026 | \$51.10 | \$14.25 | \$16.05 | \$0.00 | \$81.40 |
| | 12/01/2026 | \$52.28 | \$14.25 | \$16.05 | \$0.00 | \$82.58 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|--------|---------|---------------------------|------------|
| FLAGGER & SIGNALER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$25.23 | \$9.35 | \$17.82 | \$0.00 | \$52.40 |
| | 06/01/2023 | \$25.98 | \$9.35 | \$17.82 | \$0.00 | \$53.15 |
| | 12/01/2023 | \$25.98 | \$9.35 | \$17.82 | \$0.00 | \$53.15 |
| | 06/01/2024 | \$27.01 | \$9.35 | \$17.82 | \$0.00 | \$54.18 |
| | 12/01/2024 | \$27.01 | \$9.35 | \$17.82 | \$0.00 | \$54.18 |
| | 06/01/2025 | \$28.09 | \$9.35 | \$17.82 | \$0.00 | \$55.26 |
| | 12/01/2025 | \$28.09 | \$9.35 | \$17.82 | \$0.00 | \$55.26 |
| | 06/01/2026 | \$29.21 | \$9.35 | \$17.82 | \$0.00 | \$56.38 |
| | 12/01/2026 | \$29.21 | \$9.35 | \$17.82 | \$0.00 | \$56.38 |

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| FLOORCOVERER <i>FLOORCOVERERS LOCAL 2168 ZONE I</i> | 03/01/2022 | \$49.93 | \$8.68 | \$20.27 | \$0.00 | \$78.88 |
|--|------------|---------|--------|---------|--------|---------|

Apprentice - FLOORCOVERER - Local 2168 Zone I

Effective Date - 03/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$24.97 | \$8.68 | \$1.79 | \$0.00 | \$35.44 |
| 2 | 55 | \$27.46 | \$8.68 | \$1.79 | \$0.00 | \$37.93 |
| 3 | 60 | \$29.96 | \$8.68 | \$14.90 | \$0.00 | \$53.54 |
| 4 | 65 | \$32.45 | \$8.68 | \$14.90 | \$0.00 | \$56.03 |
| 5 | 70 | \$34.95 | \$8.68 | \$16.69 | \$0.00 | \$60.32 |
| 6 | 75 | \$37.45 | \$8.68 | \$16.69 | \$0.00 | \$62.82 |
| 7 | 80 | \$39.94 | \$8.68 | \$18.48 | \$0.00 | \$67.10 |
| 8 | 85 | \$42.44 | \$8.68 | \$18.48 | \$0.00 | \$69.60 |

Notes: Steps are 750 hrs.
 % After 10/1/17; 45/45/55/55/70/70/80/80 (1500hr Steps)
 Step 1&2 \$32.94/ 3&4 \$39.66/ 5&6 \$60.32/ 7&8 \$67.10

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| FORK LIFT/CHERRY PICKER <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| | 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| GENERATOR/LIGHTING PLANT/HEATERS <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$35.08 | \$14.25 | \$16.05 | \$0.00 | \$65.38 |
| | 06/01/2023 | \$35.90 | \$14.25 | \$16.05 | \$0.00 | \$66.20 |
| | 12/01/2023 | \$36.72 | \$14.25 | \$16.05 | \$0.00 | \$67.02 |
| | 06/01/2024 | \$37.57 | \$14.25 | \$16.05 | \$0.00 | \$67.87 |
| | 12/01/2024 | \$38.52 | \$14.25 | \$16.05 | \$0.00 | \$68.82 |
| | 06/01/2025 | \$39.37 | \$14.25 | \$16.05 | \$0.00 | \$69.67 |
| | 12/01/2025 | \$40.32 | \$14.25 | \$16.05 | \$0.00 | \$70.62 |
| | 06/01/2026 | \$41.18 | \$14.25 | \$16.05 | \$0.00 | \$71.48 |
| | 12/01/2026 | \$42.13 | \$14.25 | \$16.05 | \$0.00 | \$72.43 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS) <i>GLAZIERS LOCAL 35 (ZONE 2)</i> | 01/01/2023 | \$45.56 | \$8.65 | \$23.05 | \$0.00 | \$77.26 |
| | 07/01/2023 | \$46.76 | \$8.65 | \$23.05 | \$0.00 | \$78.46 |
| | 01/01/2024 | \$47.96 | \$8.65 | \$23.05 | \$0.00 | \$79.66 |
| | 07/01/2024 | \$49.16 | \$8.65 | \$23.05 | \$0.00 | \$80.86 |
| | 01/01/2025 | \$50.36 | \$8.65 | \$23.05 | \$0.00 | \$82.06 |

Apprentice - GLAZIER - Local 35 Zone 2

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.78 | \$8.65 | \$0.00 | \$0.00 | \$31.43 |
| 2 | 55 | \$25.06 | \$8.65 | \$6.27 | \$0.00 | \$39.98 |
| 3 | 60 | \$27.34 | \$8.65 | \$6.84 | \$0.00 | \$42.83 |
| 4 | 65 | \$29.61 | \$8.65 | \$7.41 | \$0.00 | \$45.67 |
| 5 | 70 | \$31.89 | \$8.65 | \$19.63 | \$0.00 | \$60.17 |
| 6 | 75 | \$34.17 | \$8.65 | \$20.20 | \$0.00 | \$63.02 |
| 7 | 80 | \$36.45 | \$8.65 | \$20.77 | \$0.00 | \$65.87 |
| 8 | 90 | \$41.00 | \$8.65 | \$21.91 | \$0.00 | \$71.56 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$23.38 | \$8.65 | \$0.00 | \$0.00 | \$32.03 |
| 2 | 55 | \$25.72 | \$8.65 | \$6.27 | \$0.00 | \$40.64 |
| 3 | 60 | \$28.06 | \$8.65 | \$6.84 | \$0.00 | \$43.55 |
| 4 | 65 | \$30.39 | \$8.65 | \$7.41 | \$0.00 | \$46.45 |
| 5 | 70 | \$32.73 | \$8.65 | \$19.63 | \$0.00 | \$61.01 |
| 6 | 75 | \$35.07 | \$8.65 | \$20.20 | \$0.00 | \$63.92 |
| 7 | 80 | \$37.41 | \$8.65 | \$20.77 | \$0.00 | \$66.83 |
| 8 | 90 | \$42.08 | \$8.65 | \$21.91 | \$0.00 | \$72.64 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| HOISTING ENGINEER/CRANES/GRADALLS <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| | 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 |

Apprentice - OPERATING ENGINEERS - Local 4

Effective Date - 12/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 55 | \$29.50 | \$14.25 | \$0.00 | \$0.00 | \$43.75 |
| 2 | 60 | \$32.18 | \$14.25 | \$16.05 | \$0.00 | \$62.48 |
| 3 | 65 | \$34.86 | \$14.25 | \$16.05 | \$0.00 | \$65.16 |
| 4 | 70 | \$37.54 | \$14.25 | \$16.05 | \$0.00 | \$67.84 |
| 5 | 75 | \$40.22 | \$14.25 | \$16.05 | \$0.00 | \$70.52 |
| 6 | 80 | \$42.90 | \$14.25 | \$16.05 | \$0.00 | \$73.20 |
| 7 | 85 | \$45.59 | \$14.25 | \$16.05 | \$0.00 | \$75.89 |
| 8 | 90 | \$48.27 | \$14.25 | \$16.05 | \$0.00 | \$78.57 |

Effective Date - 06/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 55 | \$30.18 | \$14.25 | \$0.00 | \$0.00 | \$44.43 |
| 2 | 60 | \$32.93 | \$14.25 | \$16.05 | \$0.00 | \$63.23 |
| 3 | 65 | \$35.67 | \$14.25 | \$16.05 | \$0.00 | \$65.97 |
| 4 | 70 | \$38.42 | \$14.25 | \$16.05 | \$0.00 | \$68.72 |
| 5 | 75 | \$41.16 | \$14.25 | \$16.05 | \$0.00 | \$71.46 |
| 6 | 80 | \$43.90 | \$14.25 | \$16.05 | \$0.00 | \$74.20 |
| 7 | 85 | \$46.65 | \$14.25 | \$16.05 | \$0.00 | \$76.95 |
| 8 | 90 | \$49.39 | \$14.25 | \$16.05 | \$0.00 | \$79.69 |

Notes:

Apprentice to Journeyworker Ratio:1:6

| | | | | | | |
|---|------------|---------|---------|---------|--------|----------|
| HVAC (DUCTWORK) <i>SHEETMETAL WORKERS LOCAL 17 - A</i> | 08/01/2022 | \$53.66 | \$14.11 | \$26.64 | \$2.83 | \$97.24 |
| | 02/01/2023 | \$55.31 | \$14.11 | \$26.64 | \$2.83 | \$98.89 |
| | 08/01/2023 | \$57.01 | \$14.11 | \$26.64 | \$2.83 | \$100.59 |
| | 02/01/2024 | \$58.71 | \$14.11 | \$26.64 | \$2.83 | \$102.29 |
| | 08/01/2024 | \$60.46 | \$14.11 | \$26.64 | \$2.83 | \$104.04 |
| | 02/01/2025 | \$62.21 | \$14.11 | \$26.64 | \$2.83 | \$105.79 |
| | 08/01/2025 | \$64.06 | \$14.11 | \$26.64 | \$2.83 | \$107.64 |
| | 02/01/2026 | \$66.01 | \$14.11 | \$26.64 | \$2.83 | \$109.59 |

For apprentice rates see "Apprentice- SHEET METAL WORKER"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| HVAC (ELECTRICAL CONTROLS) <i>ELECTRICIANS LOCAL 103</i> | 09/01/2022 | \$58.28 | \$13.00 | \$21.35 | \$0.00 | \$92.63 |
| | 03/01/2023 | \$59.23 | \$13.00 | \$21.63 | \$0.00 | \$93.86 |
| For apprentice rates see "Apprentice- ELECTRICIAN" | | | | | | |
| HVAC (TESTING AND BALANCING - AIR) <i>SHEETMETAL WORKERS LOCAL 17 - A</i> | 08/01/2022 | \$53.66 | \$14.11 | \$26.64 | \$2.83 | \$97.24 |
| | 02/01/2023 | \$55.31 | \$14.11 | \$26.64 | \$2.83 | \$98.89 |
| | 08/01/2023 | \$57.01 | \$14.11 | \$26.64 | \$2.83 | \$100.59 |
| | 02/01/2024 | \$58.71 | \$14.11 | \$26.64 | \$2.83 | \$102.29 |
| | 08/01/2024 | \$60.46 | \$14.11 | \$26.64 | \$2.83 | \$104.04 |
| | 02/01/2025 | \$62.21 | \$14.11 | \$26.64 | \$2.83 | \$105.79 |
| | 08/01/2025 | \$64.06 | \$14.11 | \$26.64 | \$2.83 | \$107.64 |
| | 02/01/2026 | \$66.01 | \$14.11 | \$26.64 | \$2.83 | \$109.59 |
| For apprentice rates see "Apprentice- SHEET METAL WORKER" | | | | | | |
| HVAC (TESTING AND BALANCING - WATER) <i>PIPEFITTERS LOCAL 537</i> | 03/01/2021 | \$57.94 | \$11.70 | \$20.24 | \$0.00 | \$89.88 |
| For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER" | | | | | | |
| HVAC MECHANIC <i>PIPEFITTERS LOCAL 537</i> | 03/01/2021 | \$57.94 | \$11.70 | \$20.24 | \$0.00 | \$89.88 |
| For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER" | | | | | | |
| HYDRAULIC DRILLS <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.93 | \$9.10 | \$17.57 | \$0.00 | \$70.60 |
| | 06/01/2023 | \$44.93 | \$9.10 | \$17.57 | \$0.00 | \$71.60 |
| | 12/01/2023 | \$46.18 | \$9.10 | \$17.57 | \$0.00 | \$72.85 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| HYDRAULIC DRILLS (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$43.33 | \$9.35 | \$17.82 | \$0.00 | \$70.50 |
| | 06/01/2023 | \$44.33 | \$9.35 | \$17.82 | \$0.00 | \$71.50 |
| | 12/01/2023 | \$45.58 | \$9.35 | \$17.82 | \$0.00 | \$72.75 |
| | 06/01/2024 | \$47.06 | \$9.35 | \$17.82 | \$0.00 | \$74.23 |
| | 12/01/2024 | \$48.53 | \$9.35 | \$17.82 | \$0.00 | \$75.70 |
| | 06/01/2025 | \$50.03 | \$9.35 | \$17.82 | \$0.00 | \$77.20 |
| | 12/01/2025 | \$51.53 | \$9.35 | \$17.82 | \$0.00 | \$78.70 |
| | 06/01/2026 | \$53.08 | \$9.35 | \$17.82 | \$0.00 | \$80.25 |
| | 12/01/2026 | \$54.58 | \$9.35 | \$17.82 | \$0.00 | \$81.75 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |
| INSULATOR (PIPES & TANKS) <i>HEAT & FROST INSULATORS LOCAL 6 (BOSTON)</i> | 09/01/2022 | \$53.85 | \$13.80 | \$17.14 | \$0.00 | \$84.79 |

Apprentice - ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston

Effective Date - 09/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$26.93 | \$13.80 | \$12.42 | \$0.00 | \$53.15 |
| 2 | 60 | \$32.31 | \$13.80 | \$13.36 | \$0.00 | \$59.47 |
| 3 | 70 | \$37.70 | \$13.80 | \$14.31 | \$0.00 | \$65.81 |
| 4 | 80 | \$43.08 | \$13.80 | \$15.25 | \$0.00 | \$72.13 |

Notes:

Steps are 1 year

Apprentice to Journeyworker Ratio:1:4

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|--------|---------|---------------------------|------------|
| IRONWORKER/WELDER <i>IRONWORKERS LOCAL 7 (BOSTON AREA)</i> | 09/16/2022 | \$51.59 | \$8.25 | \$26.70 | \$0.00 | \$86.54 |

Apprentice - IRONWORKER - Local 7 Boston

Effective Date - 09/16/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$30.95 | \$8.25 | \$26.70 | \$0.00 | \$65.90 |
| 2 | 70 | \$36.11 | \$8.25 | \$26.70 | \$0.00 | \$71.06 |
| 3 | 75 | \$38.69 | \$8.25 | \$26.70 | \$0.00 | \$73.64 |
| 4 | 80 | \$41.27 | \$8.25 | \$26.70 | \$0.00 | \$76.22 |
| 5 | 85 | \$43.85 | \$8.25 | \$26.70 | \$0.00 | \$78.80 |
| 6 | 90 | \$46.43 | \$8.25 | \$26.70 | \$0.00 | \$81.38 |

Notes:

Apprentice to Journeyworker Ratio:1:4

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| JACKHAMMER & PAVING BREAKER OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|-------------------------------------|------------|---------|--------|---------|--------|---------|
| LABORER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.18 | \$9.10 | \$17.57 | \$0.00 | \$69.85 |
| | 06/01/2023 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 12/01/2023 | \$45.43 | \$9.10 | \$17.57 | \$0.00 | \$72.10 |

Apprentice - LABORER - Zone 1

Effective Date - 12/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$25.91 | \$9.10 | \$17.57 | \$0.00 | \$52.58 |
| 2 | 70 | \$30.23 | \$9.10 | \$17.57 | \$0.00 | \$56.90 |
| 3 | 80 | \$34.54 | \$9.10 | \$17.57 | \$0.00 | \$61.21 |
| 4 | 90 | \$38.86 | \$9.10 | \$17.57 | \$0.00 | \$65.53 |

Effective Date - 06/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$26.51 | \$9.10 | \$17.57 | \$0.00 | \$53.18 |
| 2 | 70 | \$30.93 | \$9.10 | \$17.57 | \$0.00 | \$57.60 |
| 3 | 80 | \$35.34 | \$9.10 | \$17.57 | \$0.00 | \$62.01 |
| 4 | 90 | \$39.76 | \$9.10 | \$17.57 | \$0.00 | \$66.43 |

Notes:

Apprentice to Journeyworker Ratio:1:5

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|--------|---------|---------------------------|------------|
| LABORER (HEAVY & HIGHWAY) LABORERS - ZONE 1 (HEAVY & HIGHWAY) | 12/01/2022 | \$42.58 | \$9.35 | \$17.82 | \$0.00 | \$69.75 |
| | 06/01/2023 | \$43.58 | \$9.35 | \$17.82 | \$0.00 | \$70.75 |
| | 12/01/2023 | \$44.83 | \$9.35 | \$17.82 | \$0.00 | \$72.00 |
| | 06/01/2024 | \$46.31 | \$9.35 | \$17.82 | \$0.00 | \$73.48 |
| | 12/01/2024 | \$47.78 | \$9.35 | \$17.82 | \$0.00 | \$74.95 |
| | 06/01/2025 | \$49.28 | \$9.35 | \$17.82 | \$0.00 | \$76.45 |
| | 12/01/2025 | \$50.78 | \$9.35 | \$17.82 | \$0.00 | \$77.95 |
| | 06/01/2026 | \$52.33 | \$9.35 | \$17.82 | \$0.00 | \$79.50 |
| | 12/01/2026 | \$53.83 | \$9.35 | \$17.82 | \$0.00 | \$81.00 |

Apprentice - LABORER (Heavy & Highway) - Zone 1

Effective Date - 12/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$25.55 | \$9.35 | \$17.82 | \$0.00 | \$52.72 |
| 2 | 70 | \$29.81 | \$9.35 | \$17.82 | \$0.00 | \$56.98 |
| 3 | 80 | \$34.06 | \$9.35 | \$17.82 | \$0.00 | \$61.23 |
| 4 | 90 | \$38.32 | \$9.35 | \$17.82 | \$0.00 | \$65.49 |

Effective Date - 06/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 60 | \$26.15 | \$9.35 | \$17.82 | \$0.00 | \$53.32 |
| 2 | 70 | \$30.51 | \$9.35 | \$17.82 | \$0.00 | \$57.68 |
| 3 | 80 | \$34.86 | \$9.35 | \$17.82 | \$0.00 | \$62.03 |
| 4 | 90 | \$39.22 | \$9.35 | \$17.82 | \$0.00 | \$66.39 |

Notes:

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| LABORER: CARPENTER TENDER LABORERS - ZONE 1 | 12/01/2022 | \$43.18 | \$9.10 | \$17.57 | \$0.00 | \$69.85 |
| | 06/01/2023 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 12/01/2023 | \$45.43 | \$9.10 | \$17.57 | \$0.00 | \$72.10 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| LABORER: CEMENT FINISHER TENDER LABORERS - ZONE 1 | 12/01/2022 | \$43.18 | \$9.10 | \$17.57 | \$0.00 | \$69.85 |
| | 06/01/2023 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 12/01/2023 | \$45.43 | \$9.10 | \$17.57 | \$0.00 | \$72.10 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER LABORERS - ZONE 1 | 12/01/2022 | \$43.33 | \$9.10 | \$17.57 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$44.33 | \$9.10 | \$17.57 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.58 | \$9.10 | \$17.57 | \$0.00 | \$72.25 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| LABORER: MASON TENDER LABORERS - ZONE 1 | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 06/01/2024 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| LABORER: MASON TENDER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | |
| LABORER: MULTI-TRADE TENDER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.18 | \$9.10 | \$17.57 | \$0.00 | \$69.85 |
| | 06/01/2023 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 12/01/2023 | \$45.43 | \$9.10 | \$17.57 | \$0.00 | \$72.10 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| LABORER: TREE REMOVER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.18 | \$9.10 | \$17.57 | \$0.00 | \$69.85 |
| | 06/01/2023 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 12/01/2023 | \$45.43 | \$9.10 | \$17.57 | \$0.00 | \$72.10 |
| This classification applies to the removal of standing trees, and the trimming and removal of branches and limbs when related to public works construction or site clearance incidental to construction . For apprentice rates see "Apprentice- LABORER" | | | | | | |
| LASER BEAM OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| LASER BEAM OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | |
| MARBLE & TILE FINISHERS <i>BRICKLAYERS LOCAL 3 - MARBLE & TILE</i> | 08/01/2022 | \$45.29 | \$11.49 | \$20.37 | \$0.00 | \$77.15 |
| | 02/01/2023 | \$46.25 | \$11.49 | \$20.37 | \$0.00 | \$78.11 |
| | 08/01/2023 | \$47.89 | \$11.49 | \$20.37 | \$0.00 | \$79.75 |
| | 02/01/2024 | \$48.89 | \$11.49 | \$20.37 | \$0.00 | \$80.75 |
| | 08/01/2024 | \$50.57 | \$11.49 | \$20.37 | \$0.00 | \$82.43 |
| | 02/01/2025 | \$51.61 | \$11.49 | \$20.37 | \$0.00 | \$83.47 |
| | 08/01/2025 | \$53.33 | \$11.49 | \$20.37 | \$0.00 | \$85.19 |
| | 02/01/2026 | \$54.41 | \$11.49 | \$20.37 | \$0.00 | \$86.27 |
| | 08/01/2026 | \$56.17 | \$11.49 | \$20.37 | \$0.00 | \$88.03 |
| 02/01/2027 | \$57.29 | \$11.49 | \$20.37 | \$0.00 | \$89.15 | |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE & TILE FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$22.65 | \$11.49 | \$20.37 | \$0.00 | \$54.51 |
| 2 | 60 | \$27.17 | \$11.49 | \$20.37 | \$0.00 | \$59.03 |
| 3 | 70 | \$31.70 | \$11.49 | \$20.37 | \$0.00 | \$63.56 |
| 4 | 80 | \$36.23 | \$11.49 | \$20.37 | \$0.00 | \$68.09 |
| 5 | 90 | \$40.76 | \$11.49 | \$20.37 | \$0.00 | \$72.62 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$23.13 | \$11.49 | \$20.37 | \$0.00 | \$54.99 |
| 2 | 60 | \$27.75 | \$11.49 | \$20.37 | \$0.00 | \$59.61 |
| 3 | 70 | \$32.38 | \$11.49 | \$20.37 | \$0.00 | \$64.24 |
| 4 | 80 | \$37.00 | \$11.49 | \$20.37 | \$0.00 | \$68.86 |
| 5 | 90 | \$41.63 | \$11.49 | \$20.37 | \$0.00 | \$73.49 |

Notes:

Apprentice to Journeyworker Ratio:1:3

| | | | | | | |
|---|------------|---------|---------|---------|--------|----------|
| MARBLE MASONS, TILELAYERS & TERRAZZO MECH | 08/01/2022 | \$59.17 | \$11.49 | \$22.31 | \$0.00 | \$92.97 |
| BRICKLAYERS LOCAL 3 - MARBLE & TILE | 02/01/2023 | \$60.37 | \$11.49 | \$22.31 | \$0.00 | \$94.17 |
| | 08/01/2023 | \$62.42 | \$11.49 | \$22.31 | \$0.00 | \$96.22 |
| | 02/01/2024 | \$63.67 | \$11.49 | \$22.31 | \$0.00 | \$97.47 |
| | 08/01/2024 | \$65.77 | \$11.49 | \$22.31 | \$0.00 | \$99.57 |
| | 02/01/2025 | \$67.07 | \$11.49 | \$22.31 | \$0.00 | \$100.87 |
| | 08/01/2025 | \$69.22 | \$11.49 | \$22.31 | \$0.00 | \$103.02 |
| | 02/01/2026 | \$70.57 | \$11.49 | \$22.31 | \$0.00 | \$104.37 |
| | 08/01/2026 | \$72.77 | \$11.49 | \$22.31 | \$0.00 | \$106.57 |
| | 02/01/2027 | \$74.17 | \$11.49 | \$22.31 | \$0.00 | \$107.97 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$29.59 | \$11.49 | \$22.31 | \$0.00 | \$63.39 |
| 2 | 60 | \$35.50 | \$11.49 | \$22.31 | \$0.00 | \$69.30 |
| 3 | 70 | \$41.42 | \$11.49 | \$22.31 | \$0.00 | \$75.22 |
| 4 | 80 | \$47.34 | \$11.49 | \$22.31 | \$0.00 | \$81.14 |
| 5 | 90 | \$53.25 | \$11.49 | \$22.31 | \$0.00 | \$87.05 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$30.19 | \$11.49 | \$22.31 | \$0.00 | \$63.99 |
| 2 | 60 | \$36.22 | \$11.49 | \$22.31 | \$0.00 | \$70.02 |
| 3 | 70 | \$42.26 | \$11.49 | \$22.31 | \$0.00 | \$76.06 |
| 4 | 80 | \$48.30 | \$11.49 | \$22.31 | \$0.00 | \$82.10 |
| 5 | 90 | \$54.33 | \$11.49 | \$22.31 | \$0.00 | \$88.13 |

Notes:

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|--|------------|---------|---------|---------|--------|---------|
| MECH. SWEEPER OPERATOR (ON CONST. SITES) <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| MECHANICS MAINTENANCE <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| MILLWRIGHT (Zone 1) <i>MILLWRIGHTS LOCAL 1121 - Zone 1</i> | 01/02/2023 | \$47.27 | \$8.58 | \$21.57 | \$0.00 | \$77.42 |
|---|------------|---------|--------|---------|--------|---------|

Apprentice - MILLWRIGHT - Local 1121 Zone 1

Effective Date - 01/02/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 55 | \$26.00 | \$8.58 | \$5.72 | \$0.00 | \$40.30 |
| 2 | 65 | \$30.73 | \$8.58 | \$17.93 | \$0.00 | \$57.24 |
| 3 | 75 | \$35.45 | \$8.58 | \$18.98 | \$0.00 | \$63.01 |
| 4 | 85 | \$40.18 | \$8.58 | \$20.01 | \$0.00 | \$68.77 |

Notes: Step 1&2 Appr. indentured after 1/6/2020 receive no pension, but do receive annuity. (Step 1 \$5.72, Step 2 \$6.66)
Steps are 2,000 hours

Apprentice to Journeyworker Ratio:1:4

| | | | | | | |
|--------------------------|------------|---------|--------|---------|--------|---------|
| MORTAR MIXER | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| <i>LABORERS - ZONE 1</i> | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| OILER (OTHER THAN TRUCK CRANES,GRADALLS) | 12/01/2022 | \$24.37 | \$14.25 | \$16.05 | \$0.00 | \$54.67 |
| <i>OPERATING ENGINEERS LOCAL 4</i> | 06/01/2023 | \$24.94 | \$14.25 | \$16.05 | \$0.00 | \$55.24 |
| | 12/01/2023 | \$25.51 | \$14.25 | \$16.05 | \$0.00 | \$55.81 |
| | 06/01/2024 | \$26.11 | \$14.25 | \$16.05 | \$0.00 | \$56.41 |
| | 12/01/2024 | \$26.77 | \$14.25 | \$16.05 | \$0.00 | \$57.07 |
| | 06/01/2025 | \$27.37 | \$14.25 | \$16.05 | \$0.00 | \$57.67 |
| | 12/01/2025 | \$28.03 | \$14.25 | \$16.05 | \$0.00 | \$58.33 |
| | 06/01/2026 | \$28.62 | \$14.25 | \$16.05 | \$0.00 | \$58.92 |
| | 12/01/2026 | \$29.29 | \$14.25 | \$16.05 | \$0.00 | \$59.59 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|---------------------------------------|------------|---------|---------|---------|--------|---------|
| OILER (TRUCK CRANES, GRADALLS) | 12/01/2022 | \$29.57 | \$14.25 | \$16.05 | \$0.00 | \$59.87 |
| <i>OPERATING ENGINEERS LOCAL 4</i> | 06/01/2023 | \$30.27 | \$14.25 | \$16.05 | \$0.00 | \$60.57 |
| | 12/01/2023 | \$30.96 | \$14.25 | \$16.05 | \$0.00 | \$61.26 |
| | 06/01/2024 | \$31.68 | \$14.25 | \$16.05 | \$0.00 | \$61.98 |
| | 12/01/2024 | \$32.48 | \$14.25 | \$16.05 | \$0.00 | \$62.78 |
| | 06/01/2025 | \$33.20 | \$14.25 | \$16.05 | \$0.00 | \$63.50 |
| | 12/01/2025 | \$34.00 | \$14.25 | \$16.05 | \$0.00 | \$64.30 |
| | 06/01/2026 | \$34.72 | \$14.25 | \$16.05 | \$0.00 | \$65.02 |
| | 12/01/2026 | \$35.52 | \$14.25 | \$16.05 | \$0.00 | \$65.82 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| | | | | | | |
|--|------------|---------|---------|---------|--------|---------|
| OTHER POWER DRIVEN EQUIPMENT - CLASS II | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| <i>OPERATING ENGINEERS LOCAL 4</i> | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|--------|---------|---------------------------|------------|
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| PAINTER (BRIDGES/TANKS) <i>PAINTERS LOCAL 35 - ZONE 2</i> | 01/01/2023 | \$56.06 | \$8.65 | \$23.05 | \$0.00 | \$87.76 |
| | 07/01/2023 | \$57.26 | \$8.65 | \$23.05 | \$0.00 | \$88.96 |
| | 01/01/2024 | \$58.46 | \$8.65 | \$23.05 | \$0.00 | \$90.16 |
| | 07/01/2024 | \$59.66 | \$8.65 | \$23.05 | \$0.00 | \$91.36 |
| | 01/01/2025 | \$60.86 | \$8.65 | \$23.05 | \$0.00 | \$92.56 |

Apprentice - PAINTER Local 35 - BRIDGES/TANKS

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$28.03 | \$8.65 | \$0.00 | \$0.00 | \$36.68 |
| 2 | 55 | \$30.83 | \$8.65 | \$6.27 | \$0.00 | \$45.75 |
| 3 | 60 | \$33.64 | \$8.65 | \$6.84 | \$0.00 | \$49.13 |
| 4 | 65 | \$36.44 | \$8.65 | \$7.41 | \$0.00 | \$52.50 |
| 5 | 70 | \$39.24 | \$8.65 | \$19.63 | \$0.00 | \$67.52 |
| 6 | 75 | \$42.05 | \$8.65 | \$20.20 | \$0.00 | \$70.90 |
| 7 | 80 | \$44.85 | \$8.65 | \$20.77 | \$0.00 | \$74.27 |
| 8 | 90 | \$50.45 | \$8.65 | \$21.91 | \$0.00 | \$81.01 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$28.63 | \$8.65 | \$0.00 | \$0.00 | \$37.28 |
| 2 | 55 | \$31.49 | \$8.65 | \$6.27 | \$0.00 | \$46.41 |
| 3 | 60 | \$34.36 | \$8.65 | \$6.84 | \$0.00 | \$49.85 |
| 4 | 65 | \$37.22 | \$8.65 | \$7.41 | \$0.00 | \$53.28 |
| 5 | 70 | \$40.08 | \$8.65 | \$19.63 | \$0.00 | \$68.36 |
| 6 | 75 | \$42.95 | \$8.65 | \$20.20 | \$0.00 | \$71.80 |
| 7 | 80 | \$45.81 | \$8.65 | \$20.77 | \$0.00 | \$75.23 |
| 8 | 90 | \$51.53 | \$8.65 | \$21.91 | \$0.00 | \$82.09 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| PAINTER (SPRAY OR SANDBLAST, NEW) * | 01/01/2023 | \$46.96 | \$8.65 | \$23.05 | \$0.00 | \$78.66 |
| * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. <i>PAINTERS LOCAL 35 - ZONE 2</i> | 07/01/2023 | \$48.16 | \$8.65 | \$23.05 | \$0.00 | \$79.86 |
| | 01/01/2024 | \$49.36 | \$8.65 | \$23.05 | \$0.00 | \$81.06 |
| | 07/01/2024 | \$50.56 | \$8.65 | \$23.05 | \$0.00 | \$82.26 |
| | 01/01/2025 | \$51.76 | \$8.65 | \$23.05 | \$0.00 | \$83.46 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - New

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$23.48 | \$8.65 | \$0.00 | \$0.00 | \$32.13 |
| 2 | 55 | \$25.83 | \$8.65 | \$6.27 | \$0.00 | \$40.75 |
| 3 | 60 | \$28.18 | \$8.65 | \$6.84 | \$0.00 | \$43.67 |
| 4 | 65 | \$30.52 | \$8.65 | \$7.41 | \$0.00 | \$46.58 |
| 5 | 70 | \$32.87 | \$8.65 | \$19.63 | \$0.00 | \$61.15 |
| 6 | 75 | \$35.22 | \$8.65 | \$20.20 | \$0.00 | \$64.07 |
| 7 | 80 | \$37.57 | \$8.65 | \$20.77 | \$0.00 | \$66.99 |
| 8 | 90 | \$42.26 | \$8.65 | \$21.91 | \$0.00 | \$72.82 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$24.08 | \$8.65 | \$0.00 | \$0.00 | \$32.73 |
| 2 | 55 | \$26.49 | \$8.65 | \$6.27 | \$0.00 | \$41.41 |
| 3 | 60 | \$28.90 | \$8.65 | \$6.84 | \$0.00 | \$44.39 |
| 4 | 65 | \$31.30 | \$8.65 | \$7.41 | \$0.00 | \$47.36 |
| 5 | 70 | \$33.71 | \$8.65 | \$19.63 | \$0.00 | \$61.99 |
| 6 | 75 | \$36.12 | \$8.65 | \$20.20 | \$0.00 | \$64.97 |
| 7 | 80 | \$38.53 | \$8.65 | \$20.77 | \$0.00 | \$67.95 |
| 8 | 90 | \$43.34 | \$8.65 | \$21.91 | \$0.00 | \$73.90 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---------------------------------------|------------|---------|--------|---------|--------|---------|
| PAINTER (SPRAY OR SANDBLAST, REPAINT) | 01/01/2023 | \$45.02 | \$8.65 | \$23.05 | \$0.00 | \$76.72 |
| PAINTERS LOCAL 35 - ZONE 2 | 07/01/2023 | \$46.22 | \$8.65 | \$23.05 | \$0.00 | \$77.92 |
| | 01/01/2024 | \$47.42 | \$8.65 | \$23.05 | \$0.00 | \$79.12 |
| | 07/01/2024 | \$48.62 | \$8.65 | \$23.05 | \$0.00 | \$80.32 |
| | 01/01/2025 | \$49.82 | \$8.65 | \$23.05 | \$0.00 | \$81.52 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.51 | \$8.65 | \$0.00 | \$0.00 | \$31.16 |
| 2 | 55 | \$24.76 | \$8.65 | \$6.27 | \$0.00 | \$39.68 |
| 3 | 60 | \$27.01 | \$8.65 | \$6.84 | \$0.00 | \$42.50 |
| 4 | 65 | \$29.26 | \$8.65 | \$7.41 | \$0.00 | \$45.32 |
| 5 | 70 | \$31.51 | \$8.65 | \$19.63 | \$0.00 | \$59.79 |
| 6 | 75 | \$33.77 | \$8.65 | \$20.20 | \$0.00 | \$62.62 |
| 7 | 80 | \$36.02 | \$8.65 | \$20.77 | \$0.00 | \$65.44 |
| 8 | 90 | \$40.52 | \$8.65 | \$21.91 | \$0.00 | \$71.08 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$23.11 | \$8.65 | \$0.00 | \$0.00 | \$31.76 |
| 2 | 55 | \$25.42 | \$8.65 | \$6.27 | \$0.00 | \$40.34 |
| 3 | 60 | \$27.73 | \$8.65 | \$6.84 | \$0.00 | \$43.22 |
| 4 | 65 | \$30.04 | \$8.65 | \$19.06 | \$0.00 | \$57.75 |
| 5 | 70 | \$32.35 | \$8.65 | \$19.63 | \$0.00 | \$60.63 |
| 6 | 75 | \$34.67 | \$8.65 | \$20.20 | \$0.00 | \$63.52 |
| 7 | 80 | \$36.98 | \$8.65 | \$20.77 | \$0.00 | \$66.40 |
| 8 | 90 | \$41.60 | \$8.65 | \$21.91 | \$0.00 | \$72.16 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| PAINTER / TAPER (BRUSH, NEW) * | 01/01/2023 | \$45.56 | \$8.65 | \$23.05 | \$0.00 | \$77.26 |
| * If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used. PAINTERS LOCAL 35 - ZONE 2 | 07/01/2023 | \$46.76 | \$8.65 | \$23.05 | \$0.00 | \$78.46 |
| | 01/01/2024 | \$47.96 | \$8.65 | \$23.05 | \$0.00 | \$79.66 |
| | 07/01/2024 | \$49.16 | \$8.65 | \$23.05 | \$0.00 | \$80.86 |
| | 01/01/2025 | \$50.36 | \$8.65 | \$23.05 | \$0.00 | \$82.06 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER - Local 35 Zone 2 - BRUSH NEW

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.78 | \$8.65 | \$0.00 | \$0.00 | \$31.43 |
| 2 | 55 | \$25.06 | \$8.65 | \$6.27 | \$0.00 | \$39.98 |
| 3 | 60 | \$27.34 | \$8.65 | \$6.84 | \$0.00 | \$42.83 |
| 4 | 65 | \$29.61 | \$8.65 | \$7.41 | \$0.00 | \$45.67 |
| 5 | 70 | \$31.89 | \$8.65 | \$19.63 | \$0.00 | \$60.17 |
| 6 | 75 | \$34.17 | \$8.65 | \$20.20 | \$0.00 | \$63.02 |
| 7 | 80 | \$36.45 | \$8.65 | \$20.77 | \$0.00 | \$65.87 |
| 8 | 90 | \$41.00 | \$8.65 | \$21.91 | \$0.00 | \$71.56 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$23.38 | \$8.65 | \$0.00 | \$0.00 | \$32.03 |
| 2 | 55 | \$25.72 | \$8.65 | \$6.27 | \$0.00 | \$40.64 |
| 3 | 60 | \$28.06 | \$8.65 | \$6.84 | \$0.00 | \$43.55 |
| 4 | 65 | \$30.39 | \$8.65 | \$7.41 | \$0.00 | \$46.45 |
| 5 | 70 | \$32.73 | \$8.65 | \$19.63 | \$0.00 | \$61.01 |
| 6 | 75 | \$35.07 | \$8.65 | \$20.20 | \$0.00 | \$63.92 |
| 7 | 80 | \$37.41 | \$8.65 | \$20.77 | \$0.00 | \$66.83 |
| 8 | 90 | \$42.08 | \$8.65 | \$21.91 | \$0.00 | \$72.64 |

Notes:
Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|----------------------------------|------------|---------|--------|---------|--------|---------|
| PAINTER / TAPER (BRUSH, REPAINT) | 01/01/2023 | \$43.62 | \$8.65 | \$23.05 | \$0.00 | \$75.32 |
| PAINTERS LOCAL 35 - ZONE 2 | 07/01/2023 | \$44.82 | \$8.65 | \$23.05 | \$0.00 | \$76.52 |
| | 01/01/2024 | \$46.02 | \$8.65 | \$23.05 | \$0.00 | \$77.72 |
| | 07/01/2024 | \$47.22 | \$8.65 | \$23.05 | \$0.00 | \$78.92 |
| | 01/01/2025 | \$48.42 | \$8.65 | \$23.05 | \$0.00 | \$80.12 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - PAINTER Local 35 Zone 2 - BRUSH REPAINT

Effective Date - 01/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$21.81 | \$8.65 | \$0.00 | \$0.00 | \$30.46 |
| 2 | 55 | \$23.99 | \$8.65 | \$6.27 | \$0.00 | \$38.91 |
| 3 | 60 | \$26.17 | \$8.65 | \$6.84 | \$0.00 | \$41.66 |
| 4 | 65 | \$28.35 | \$8.65 | \$7.41 | \$0.00 | \$44.41 |
| 5 | 70 | \$30.53 | \$8.65 | \$19.63 | \$0.00 | \$58.81 |
| 6 | 75 | \$32.72 | \$8.65 | \$20.20 | \$0.00 | \$61.57 |
| 7 | 80 | \$34.90 | \$8.65 | \$20.77 | \$0.00 | \$64.32 |
| 8 | 90 | \$39.26 | \$8.65 | \$21.91 | \$0.00 | \$69.82 |

Effective Date - 07/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$22.41 | \$8.65 | \$0.00 | \$0.00 | \$31.06 |
| 2 | 55 | \$24.65 | \$8.65 | \$6.27 | \$0.00 | \$39.57 |
| 3 | 60 | \$26.89 | \$8.65 | \$6.84 | \$0.00 | \$42.38 |
| 4 | 65 | \$29.13 | \$8.65 | \$7.41 | \$0.00 | \$45.19 |
| 5 | 70 | \$31.37 | \$8.65 | \$19.63 | \$0.00 | \$59.65 |
| 6 | 75 | \$33.62 | \$8.65 | \$20.20 | \$0.00 | \$62.47 |
| 7 | 80 | \$35.86 | \$8.65 | \$20.77 | \$0.00 | \$65.28 |
| 8 | 90 | \$40.34 | \$8.65 | \$21.91 | \$0.00 | \$70.90 |

Notes:

Steps are 750 hrs.

Apprentice to Journeyworker Ratio:1:1

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| PAINTER TRAFFIC MARKINGS (HEAVY/HIGHWAY) | 12/01/2022 | \$42.58 | \$9.35 | \$17.82 | \$0.00 | \$69.75 |
| LABORERS - ZONE 1 (HEAVY & HIGHWAY) | 06/01/2023 | \$43.58 | \$9.35 | \$17.82 | \$0.00 | \$70.75 |
| | 12/01/2023 | \$44.83 | \$9.35 | \$17.82 | \$0.00 | \$72.00 |
| | 06/01/2024 | \$46.31 | \$9.35 | \$17.82 | \$0.00 | \$73.48 |
| | 12/01/2024 | \$47.78 | \$9.35 | \$17.82 | \$0.00 | \$74.95 |
| | 06/01/2025 | \$49.28 | \$9.35 | \$17.82 | \$0.00 | \$76.45 |
| | 12/01/2025 | \$50.78 | \$9.35 | \$17.82 | \$0.00 | \$77.95 |
| | 06/01/2026 | \$52.33 | \$9.35 | \$17.82 | \$0.00 | \$79.50 |
| | 12/01/2026 | \$53.83 | \$9.35 | \$17.82 | \$0.00 | \$81.00 |

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

| | | | | | | |
|---------------------------------------|------------|---------|---------|---------|--------|---------|
| PANEL & PICKUP TRUCKS DRIVER | 12/01/2021 | \$35.78 | \$13.41 | \$16.01 | \$0.00 | \$65.20 |
| TEAMSTERS JOINT COUNCIL NO. 10 ZONE B | | | | | | |

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK) | 08/01/2020 | \$49.07 | \$9.40 | \$23.12 | \$0.00 | \$81.59 |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | |

For apprentice rates see "Apprentice- PILE DRIVER"

| | | | | | | |
|-------------------------------|------------|---------|--------|---------|--------|---------|
| PILE DRIVER | 08/01/2020 | \$49.07 | \$9.40 | \$23.12 | \$0.00 | \$81.59 |
| PILE DRIVER LOCAL 56 (ZONE 1) | | | | | | |

Apprentice - PILE DRIVER - Local 56 Zone 1

Effective Date - 08/01/2020

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|--------|---------|---------------------------|------------|
| 1 | 50 | \$24.54 | \$9.40 | \$23.12 | \$0.00 | \$57.06 |
| 2 | 60 | \$29.44 | \$9.40 | \$23.12 | \$0.00 | \$61.96 |
| 3 | 70 | \$34.35 | \$9.40 | \$23.12 | \$0.00 | \$66.87 |
| 4 | 75 | \$36.80 | \$9.40 | \$23.12 | \$0.00 | \$69.32 |
| 5 | 80 | \$39.26 | \$9.40 | \$23.12 | \$0.00 | \$71.78 |
| 6 | 80 | \$39.26 | \$9.40 | \$23.12 | \$0.00 | \$71.78 |
| 7 | 90 | \$44.16 | \$9.40 | \$23.12 | \$0.00 | \$76.68 |
| 8 | 90 | \$44.16 | \$9.40 | \$23.12 | \$0.00 | \$76.68 |

Notes:
 % Indentured After 10/1/17; 45/45/55/55/70/70/80/80
 Step 1&2 \$34.01/ 3&4 \$41.46/ 5&6 \$62.80/ 7&8 \$69.25

Apprentice to Journeyworker Ratio:1:5

| | | | | | | |
|--|------------|---------|---------|---------|--------|---------|
| PIPEFITTER & STEAMFITTER <i>PIPEFITTERS LOCAL 537</i> | 03/01/2021 | \$57.94 | \$11.70 | \$20.24 | \$0.00 | \$89.88 |
|--|------------|---------|---------|---------|--------|---------|

Apprentice - PIPEFITTER - Local 537

Effective Date - 03/01/2021

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 40 | \$23.18 | \$11.70 | \$8.25 | \$0.00 | \$43.13 |
| 2 | 45 | \$26.07 | \$11.70 | \$20.24 | \$0.00 | \$58.01 |
| 3 | 60 | \$34.76 | \$11.70 | \$20.24 | \$0.00 | \$66.70 |
| 4 | 70 | \$40.56 | \$11.70 | \$20.24 | \$0.00 | \$72.50 |
| 5 | 80 | \$46.35 | \$11.70 | \$20.24 | \$0.00 | \$78.29 |

Notes:
 ** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.
 Refrig/AC Mechanic **1:1;1:2;2:4;3:6;4:8;5:10;6:12;7:14;8:17;9:20;10:23(Max)

Apprentice to Journeyworker Ratio:**

| | | | | | | |
|---------------------------------------|------------|---------|--------|---------|--------|---------|
| PIPELAYER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |

For apprentice rates see "Apprentice- LABORER"

| | | | | | | |
|---|------------|---------|--------|---------|--------|---------|
| PIPELAYER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway) | | | | | | |
| PLUMBERS & GASFITTERS <i>PLUMBERS & GASFITTERS LOCAL 12</i> | 09/04/2022 | \$63.49 | \$14.07 | \$18.36 | \$0.00 | \$95.92 |
| | 02/26/2023 | \$65.19 | \$14.07 | \$18.36 | \$0.00 | \$97.62 |
| | 09/03/2023 | \$66.94 | \$14.07 | \$18.36 | \$0.00 | \$99.37 |
| | 03/03/2024 | \$68.74 | \$14.07 | \$18.36 | \$0.00 | \$101.17 |
| | 09/01/2024 | \$70.54 | \$14.07 | \$18.36 | \$0.00 | \$102.97 |
| | 03/02/2025 | \$72.34 | \$14.07 | \$18.36 | \$0.00 | \$104.77 |

Apprentice - PLUMBER/GASFITTER - Local 12

Effective Date - 09/04/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 35 | \$22.22 | \$14.07 | \$6.63 | \$0.00 | \$42.92 |
| 2 | 40 | \$25.40 | \$14.07 | \$7.52 | \$0.00 | \$46.99 |
| 3 | 55 | \$34.92 | \$14.07 | \$10.24 | \$0.00 | \$59.23 |
| 4 | 65 | \$41.27 | \$14.07 | \$12.04 | \$0.00 | \$67.38 |
| 5 | 75 | \$47.62 | \$14.07 | \$13.85 | \$0.00 | \$75.54 |

Effective Date - 02/26/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 35 | \$22.82 | \$14.07 | \$6.63 | \$0.00 | \$43.52 |
| 2 | 40 | \$26.08 | \$14.07 | \$7.52 | \$0.00 | \$47.67 |
| 3 | 55 | \$35.85 | \$14.07 | \$10.24 | \$0.00 | \$60.16 |
| 4 | 65 | \$42.37 | \$14.07 | \$12.04 | \$0.00 | \$68.48 |
| 5 | 75 | \$48.89 | \$14.07 | \$13.85 | \$0.00 | \$76.81 |

Notes:

** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr
Step4 with lic\$69.00, Step5 with lic\$76.87

Apprentice to Journeyworker Ratio:**

| | | | | | | |
|---|------------|---------|---------|---------|--------|---------|
| PNEUMATIC CONTROLS (TEMP.) <i>PIPEFITTERS LOCAL 537</i> | 03/01/2021 | \$57.94 | \$11.70 | \$20.24 | \$0.00 | \$89.88 |
| For apprentice rates see "Apprentice- PIPEFITTER" or "PLUMBER/PIPEFITTER" | | | | | | |
| PNEUMATIC DRILL/TOOL OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| PNEUMATIC DRILL/TOOL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| | 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 |

For apprentice rates see "Apprentice- LABORER (Heavy and Highway)

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| POWDERMAN & BLASTER <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$44.18 | \$9.10 | \$17.57 | \$0.00 | \$70.85 |
| | 06/01/2023 | \$45.18 | \$9.10 | \$17.57 | \$0.00 | \$71.85 |
| | 12/01/2023 | \$46.43 | \$9.10 | \$17.57 | \$0.00 | \$73.10 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| POWDERMAN & BLASTER (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$43.58 | \$9.35 | \$17.82 | \$0.00 | \$70.75 |
| | 06/01/2023 | \$44.58 | \$9.35 | \$17.82 | \$0.00 | \$71.75 |
| | 12/01/2023 | \$45.83 | \$9.35 | \$17.82 | \$0.00 | \$73.00 |
| | 06/01/2024 | \$47.31 | \$9.35 | \$17.82 | \$0.00 | \$74.48 |
| | 12/01/2024 | \$48.78 | \$9.35 | \$17.82 | \$0.00 | \$75.95 |
| | 06/01/2025 | \$50.28 | \$9.35 | \$17.82 | \$0.00 | \$77.45 |
| | 12/01/2025 | \$51.78 | \$9.35 | \$17.82 | \$0.00 | \$78.95 |
| | 06/01/2026 | \$53.33 | \$9.35 | \$17.82 | \$0.00 | \$80.50 |
| 12/01/2026 | \$54.83 | \$9.35 | \$17.82 | \$0.00 | \$82.00 | |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |
| POWER SHOVEL/DERRICK/TRENCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 | |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| PUMP OPERATOR (CONCRETE) <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 | |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| PUMP OPERATOR (DEWATERING, OTHER) <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$35.08 | \$14.25 | \$16.05 | \$0.00 | \$65.38 |
| | 06/01/2023 | \$35.90 | \$14.25 | \$16.05 | \$0.00 | \$66.20 |
| | 12/01/2023 | \$36.72 | \$14.25 | \$16.05 | \$0.00 | \$67.02 |
| | 06/01/2024 | \$37.57 | \$14.25 | \$16.05 | \$0.00 | \$67.87 |
| | 12/01/2024 | \$38.52 | \$14.25 | \$16.05 | \$0.00 | \$68.82 |
| | 06/01/2025 | \$39.37 | \$14.25 | \$16.05 | \$0.00 | \$69.67 |
| | 12/01/2025 | \$40.32 | \$14.25 | \$16.05 | \$0.00 | \$70.62 |
| | 06/01/2026 | \$41.18 | \$14.25 | \$16.05 | \$0.00 | \$71.48 |
| 12/01/2026 | \$42.13 | \$14.25 | \$16.05 | \$0.00 | \$72.43 | |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| READY-MIX CONCRETE DRIVER <i>TEAMSTERS 42 - J.G. MacLeallan (Wakefield)</i> | 05/01/2022 | \$29.00 | \$12.00 | \$7.00 | \$0.00 | \$48.00 |
| | 05/01/2023 | \$29.25 | \$12.00 | \$7.00 | \$0.00 | \$48.25 |
| | 05/01/2024 | \$29.50 | \$12.00 | \$7.00 | \$0.00 | \$48.50 |
| | 05/01/2025 | \$30.00 | \$12.00 | \$7.00 | \$0.00 | \$49.00 |
| | 05/01/2026 | \$30.50 | \$12.00 | \$7.00 | \$0.00 | \$49.50 |
| RECLAIMERS <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| RIDE-ON MOTORIZED BUGGY OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| ROLLER/SPREADER/MULCHING MACHINE <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| ROOFER (Inc.Roofer Waterproofng &Roofer Damproofg) <i>ROOFERS LOCAL 33</i> | 08/01/2022 | \$48.53 | \$12.28 | \$19.45 | \$0.00 | \$80.26 |
| | 02/01/2023 | \$49.78 | \$12.28 | \$19.45 | \$0.00 | \$81.51 |
| | 08/01/2023 | \$51.28 | \$12.28 | \$19.45 | \$0.00 | \$83.01 |
| | 02/01/2024 | \$52.53 | \$12.28 | \$19.45 | \$0.00 | \$84.26 |
| | 08/01/2024 | \$54.03 | \$12.28 | \$19.45 | \$0.00 | \$85.76 |
| | 02/01/2025 | \$55.28 | \$12.28 | \$19.45 | \$0.00 | \$87.01 |
| | 08/01/2025 | \$56.78 | \$12.28 | \$19.45 | \$0.00 | \$88.51 |
| | 02/01/2026 | \$58.03 | \$12.28 | \$19.45 | \$0.00 | \$89.76 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - ROOFER - Local 33

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$24.27 | \$12.28 | \$5.21 | \$0.00 | \$41.76 |
| 2 | 60 | \$29.12 | \$12.28 | \$19.45 | \$0.00 | \$60.85 |
| 3 | 65 | \$31.54 | \$12.28 | \$19.45 | \$0.00 | \$63.27 |
| 4 | 75 | \$36.40 | \$12.28 | \$19.45 | \$0.00 | \$68.13 |
| 5 | 85 | \$41.25 | \$12.28 | \$19.45 | \$0.00 | \$72.98 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$24.89 | \$12.28 | \$5.21 | \$0.00 | \$42.38 |
| 2 | 60 | \$29.87 | \$12.28 | \$19.45 | \$0.00 | \$61.60 |
| 3 | 65 | \$32.36 | \$12.28 | \$19.45 | \$0.00 | \$64.09 |
| 4 | 75 | \$37.34 | \$12.28 | \$19.45 | \$0.00 | \$69.07 |
| 5 | 85 | \$42.31 | \$12.28 | \$19.45 | \$0.00 | \$74.04 |

Notes: ** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1
 Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.
 (Hot Pitch Mechanics' receive \$1.00 hr. above ROOFER)

Apprentice to Journeyworker Ratio:**

| | | | | | | |
|--|------------|---------|---------|---------|--------|---------|
| ROOFER SLATE / TILE / PRECAST CONCRETE | 08/01/2022 | \$48.78 | \$12.28 | \$19.45 | \$0.00 | \$80.51 |
| ROOFERS LOCAL 33 | 02/01/2023 | \$50.03 | \$12.28 | \$19.45 | \$0.00 | \$81.76 |
| | 08/01/2023 | \$51.53 | \$12.28 | \$19.45 | \$0.00 | \$83.26 |
| | 02/01/2024 | \$52.78 | \$12.28 | \$19.45 | \$0.00 | \$84.51 |
| | 08/01/2024 | \$54.28 | \$12.28 | \$19.45 | \$0.00 | \$86.01 |
| | 02/01/2025 | \$55.53 | \$12.28 | \$19.45 | \$0.00 | \$87.26 |
| | 08/01/2025 | \$57.03 | \$12.28 | \$19.45 | \$0.00 | \$88.76 |
| | 02/01/2026 | \$58.28 | \$12.28 | \$19.45 | \$0.00 | \$90.01 |

For apprentice rates see "Apprentice- ROOFER"

| | | | | | | |
|---------------------------------|------------|---------|---------|---------|--------|----------|
| SHEETMETAL WORKER | 08/01/2022 | \$53.66 | \$14.11 | \$26.64 | \$2.83 | \$97.24 |
| SHEETMETAL WORKERS LOCAL 17 - A | 02/01/2023 | \$55.31 | \$14.11 | \$26.64 | \$2.83 | \$98.89 |
| | 08/01/2023 | \$57.01 | \$14.11 | \$26.64 | \$2.83 | \$100.59 |
| | 02/01/2024 | \$58.71 | \$14.11 | \$26.64 | \$2.83 | \$102.29 |
| | 08/01/2024 | \$60.46 | \$14.11 | \$26.64 | \$2.83 | \$104.04 |
| | 02/01/2025 | \$62.21 | \$14.11 | \$26.64 | \$2.83 | \$105.79 |
| | 08/01/2025 | \$64.06 | \$14.11 | \$26.64 | \$2.83 | \$107.64 |
| | 02/01/2026 | \$66.01 | \$14.11 | \$26.64 | \$2.83 | \$109.59 |

Classification

Effective Date Base Wage Health Pension Supplemental Unemployment Total Rate

Apprentice - SHEET METAL WORKER - Local 17-A

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 42 | \$22.54 | \$14.11 | \$6.13 | \$0.00 | \$42.78 |
| 2 | 42 | \$22.54 | \$14.11 | \$6.13 | \$0.00 | \$42.78 |
| 3 | 47 | \$25.22 | \$14.11 | \$11.90 | \$1.54 | \$52.77 |
| 4 | 47 | \$25.22 | \$14.11 | \$11.90 | \$1.54 | \$52.77 |
| 5 | 52 | \$27.90 | \$14.11 | \$12.88 | \$1.65 | \$56.54 |
| 6 | 52 | \$27.90 | \$14.11 | \$13.13 | \$1.65 | \$56.79 |
| 7 | 60 | \$32.20 | \$14.11 | \$14.54 | \$1.83 | \$62.68 |
| 8 | 65 | \$34.88 | \$14.11 | \$15.52 | \$1.94 | \$66.45 |
| 9 | 75 | \$40.25 | \$14.11 | \$17.48 | \$2.16 | \$74.00 |
| 10 | 85 | \$45.61 | \$14.11 | \$18.94 | \$2.36 | \$81.02 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 42 | \$23.23 | \$14.11 | \$6.13 | \$0.00 | \$43.47 |
| 2 | 42 | \$23.23 | \$14.11 | \$6.13 | \$0.00 | \$43.47 |
| 3 | 47 | \$26.00 | \$14.11 | \$11.90 | \$1.54 | \$53.55 |
| 4 | 47 | \$26.00 | \$14.11 | \$11.90 | \$1.54 | \$53.55 |
| 5 | 52 | \$28.76 | \$14.11 | \$12.88 | \$1.65 | \$57.40 |
| 6 | 52 | \$28.76 | \$14.11 | \$13.13 | \$1.65 | \$57.65 |
| 7 | 60 | \$33.19 | \$14.11 | \$14.54 | \$1.83 | \$63.67 |
| 8 | 65 | \$35.95 | \$14.11 | \$15.52 | \$1.94 | \$67.52 |
| 9 | 75 | \$41.48 | \$14.11 | \$17.48 | \$2.16 | \$75.23 |
| 10 | 85 | \$47.01 | \$14.11 | \$18.94 | \$2.36 | \$82.42 |

Notes:
Steps are 6 mos.

Apprentice to Journeyworker Ratio:1:4

| | | | | | | |
|--|------------|---------|---------|---------|--------|----------|
| SPECIALIZED EARTH MOVING EQUIP < 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.24 | \$13.41 | \$16.01 | \$0.00 | \$65.66 |
| SPECIALIZED EARTH MOVING EQUIP > 35 TONS <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.53 | \$13.41 | \$16.01 | \$0.00 | \$65.95 |
| SPRINKLER FITTER <i>SPRINKLER FITTERS LOCAL 550 - (Section A) Zone 1</i> | 10/01/2022 | \$65.56 | \$15.50 | \$22.10 | \$0.00 | \$103.16 |
| | 03/01/2023 | \$67.26 | \$15.50 | \$22.10 | \$0.00 | \$104.86 |
| | 10/01/2023 | \$69.01 | \$15.50 | \$22.10 | \$0.00 | \$106.61 |
| | 03/01/2024 | \$70.81 | \$15.50 | \$22.10 | \$0.00 | \$108.41 |
| | 10/01/2024 | \$72.61 | \$15.50 | \$22.10 | \$0.00 | \$110.21 |
| | 03/01/2025 | \$74.41 | \$15.50 | \$22.10 | \$0.00 | \$112.01 |

Apprentice - SPRINKLER FITTER - Local 550 (Section A) Zone 1

Effective Date - 10/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 35 | \$22.95 | \$15.50 | \$9.60 | \$0.00 | \$48.05 |
| 2 | 40 | \$26.22 | \$15.50 | \$9.60 | \$0.00 | \$51.32 |
| 3 | 45 | \$29.50 | \$15.50 | \$9.60 | \$0.00 | \$54.60 |
| 4 | 50 | \$32.78 | \$15.50 | \$9.60 | \$0.00 | \$57.88 |
| 5 | 55 | \$36.06 | \$15.50 | \$9.60 | \$0.00 | \$61.16 |
| 6 | 60 | \$39.34 | \$15.50 | \$11.10 | \$0.00 | \$65.94 |
| 7 | 65 | \$42.61 | \$15.50 | \$11.10 | \$0.00 | \$69.21 |
| 8 | 70 | \$45.89 | \$15.50 | \$11.10 | \$0.00 | \$72.49 |
| 9 | 75 | \$49.17 | \$15.50 | \$11.10 | \$0.00 | \$75.77 |
| 10 | 80 | \$52.45 | \$15.50 | \$11.10 | \$0.00 | \$79.05 |

Effective Date - 03/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 35 | \$23.54 | \$15.50 | \$9.60 | \$0.00 | \$48.64 |
| 2 | 40 | \$26.90 | \$15.50 | \$9.60 | \$0.00 | \$52.00 |
| 3 | 45 | \$30.27 | \$15.50 | \$9.60 | \$0.00 | \$55.37 |
| 4 | 50 | \$33.63 | \$15.50 | \$9.60 | \$0.00 | \$58.73 |
| 5 | 55 | \$36.99 | \$15.50 | \$9.60 | \$0.00 | \$62.09 |
| 6 | 60 | \$40.36 | \$15.50 | \$11.10 | \$0.00 | \$66.96 |
| 7 | 65 | \$43.72 | \$15.50 | \$11.10 | \$0.00 | \$70.32 |
| 8 | 70 | \$47.08 | \$15.50 | \$11.10 | \$0.00 | \$73.68 |
| 9 | 75 | \$50.45 | \$15.50 | \$11.10 | \$0.00 | \$77.05 |
| 10 | 80 | \$53.81 | \$15.50 | \$11.10 | \$0.00 | \$80.41 |

Notes: Apprentice entered prior 9/30/10:
40/45/50/55/60/65/70/75/80/85
Steps are 850 hours

Apprentice to Journeyworker Ratio:1:3

| | | | | | | |
|-----------------------------|------------|---------|---------|---------|--------|---------|
| STEAM BOILER OPERATOR | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| OPERATING ENGINEERS LOCAL 4 | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |

For apprentice rates see "Apprentice- OPERATING ENGINEERS"

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| TELECOMMUNICATION TECHNICIAN <i>ELECTRICIANS LOCAL 103</i> | 09/01/2022 | \$46.42 | \$13.00 | \$18.87 | \$0.00 | \$78.29 |
| | 03/01/2023 | \$48.34 | \$13.00 | \$19.01 | \$0.00 | \$80.35 |

Apprentice - TELECOMMUNICATION TECHNICIAN - Local 103

Effective Date - 09/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 45 | \$20.89 | \$13.00 | \$0.63 | \$0.00 | \$34.52 |
| 2 | 45 | \$20.89 | \$13.00 | \$0.63 | \$0.00 | \$34.52 |
| 3 | 50 | \$23.21 | \$13.00 | \$15.13 | \$0.00 | \$51.34 |
| 4 | 50 | \$23.21 | \$13.00 | \$15.13 | \$0.00 | \$51.34 |
| 5 | 55 | \$25.53 | \$13.00 | \$15.51 | \$0.00 | \$54.04 |
| 6 | 60 | \$27.85 | \$13.00 | \$15.88 | \$0.00 | \$56.73 |
| 7 | 65 | \$30.17 | \$13.00 | \$16.26 | \$0.00 | \$59.43 |
| 8 | 70 | \$32.49 | \$13.00 | \$16.62 | \$0.00 | \$62.11 |
| 9 | 75 | \$34.82 | \$13.00 | \$17.00 | \$0.00 | \$64.82 |
| 10 | 80 | \$37.14 | \$13.00 | \$17.37 | \$0.00 | \$67.51 |

Effective Date - 03/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 45 | \$21.75 | \$13.00 | \$0.65 | \$0.00 | \$35.40 |
| 2 | 45 | \$21.75 | \$13.00 | \$0.65 | \$0.00 | \$35.40 |
| 3 | 50 | \$24.17 | \$13.00 | \$15.20 | \$0.00 | \$52.37 |
| 4 | 50 | \$24.17 | \$13.00 | \$15.20 | \$0.00 | \$52.37 |
| 5 | 55 | \$26.59 | \$13.00 | \$15.58 | \$0.00 | \$55.17 |
| 6 | 60 | \$29.00 | \$13.00 | \$15.96 | \$0.00 | \$57.96 |
| 7 | 65 | \$31.42 | \$13.00 | \$16.34 | \$0.00 | \$60.76 |
| 8 | 70 | \$33.84 | \$13.00 | \$16.73 | \$0.00 | \$63.57 |
| 9 | 75 | \$36.26 | \$13.00 | \$17.11 | \$0.00 | \$66.37 |
| 10 | 80 | \$38.67 | \$13.00 | \$17.48 | \$0.00 | \$69.15 |

Notes:

Apprentice to Journeyworker Ratio:1:1

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| TERRAZZO FINISHERS BRICKLAYERS LOCAL 3 - MARBLE & TILE | 08/01/2022 | \$58.09 | \$11.49 | \$22.34 | \$0.00 | \$91.92 |
| | 02/01/2023 | \$59.29 | \$11.49 | \$22.34 | \$0.00 | \$93.12 |
| | 08/01/2023 | \$61.34 | \$11.49 | \$22.34 | \$0.00 | \$95.17 |
| | 02/01/2024 | \$62.59 | \$11.49 | \$22.34 | \$0.00 | \$96.42 |
| | 08/01/2024 | \$64.69 | \$11.49 | \$22.34 | \$0.00 | \$98.52 |
| | 02/01/2025 | \$65.99 | \$11.49 | \$22.34 | \$0.00 | \$99.82 |
| | 08/01/2025 | \$68.14 | \$11.49 | \$22.34 | \$0.00 | \$101.97 |
| | 02/01/2026 | \$69.49 | \$11.49 | \$22.34 | \$0.00 | \$103.32 |
| | 08/01/2026 | \$71.69 | \$11.49 | \$22.34 | \$0.00 | \$105.52 |
| | 02/01/2027 | \$73.09 | \$11.49 | \$22.34 | \$0.00 | \$106.92 |

Apprentice - TERRAZZO FINISHER - Local 3 Marble & Tile

Effective Date - 08/01/2022

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$29.05 | \$11.49 | \$22.34 | \$0.00 | \$62.88 |
| 2 | 60 | \$34.85 | \$11.49 | \$22.34 | \$0.00 | \$68.68 |
| 3 | 70 | \$40.66 | \$11.49 | \$22.34 | \$0.00 | \$74.49 |
| 4 | 80 | \$46.47 | \$11.49 | \$22.34 | \$0.00 | \$80.30 |
| 5 | 90 | \$52.28 | \$11.49 | \$22.34 | \$0.00 | \$86.11 |

Effective Date - 02/01/2023

| Step | percent | Apprentice Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|------|---------|----------------------|---------|---------|---------------------------|------------|
| 1 | 50 | \$29.65 | \$11.49 | \$22.34 | \$0.00 | \$63.48 |
| 2 | 60 | \$35.57 | \$11.49 | \$22.34 | \$0.00 | \$69.40 |
| 3 | 70 | \$41.50 | \$11.49 | \$22.34 | \$0.00 | \$75.33 |
| 4 | 80 | \$47.43 | \$11.49 | \$22.34 | \$0.00 | \$81.26 |
| 5 | 90 | \$53.36 | \$11.49 | \$22.34 | \$0.00 | \$87.19 |

Notes:

Apprentice to Journeyworker Ratio:1:3

| | | | | | | |
|--|------------|---------|--------|---------|--------|---------|
| TEST BORING DRILLER LABORERS - FOUNDATION AND MARINE | 12/01/2021 | \$42.58 | \$9.10 | \$17.72 | \$0.00 | \$69.40 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| TEST BORING DRILLER HELPER LABORERS - FOUNDATION AND MARINE | 12/01/2021 | \$41.30 | \$9.10 | \$17.72 | \$0.00 | \$68.12 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| TEST BORING LABORER LABORERS - FOUNDATION AND MARINE | 12/01/2021 | \$41.18 | \$9.10 | \$17.72 | \$0.00 | \$68.00 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|---|----------------|-----------|---------|---------|---------------------------|------------|
| TRACTORS/PORTABLE STEAM GENERATORS <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.05 | \$14.25 | \$16.05 | \$0.00 | \$83.35 |
| | 06/01/2023 | \$54.29 | \$14.25 | \$16.05 | \$0.00 | \$84.59 |
| | 12/01/2023 | \$55.53 | \$14.25 | \$16.05 | \$0.00 | \$85.83 |
| | 06/01/2024 | \$56.81 | \$14.25 | \$16.05 | \$0.00 | \$87.11 |
| | 12/01/2024 | \$58.25 | \$14.25 | \$16.05 | \$0.00 | \$88.55 |
| | 06/01/2025 | \$59.53 | \$14.25 | \$16.05 | \$0.00 | \$89.83 |
| | 12/01/2025 | \$60.97 | \$14.25 | \$16.05 | \$0.00 | \$91.27 |
| | 06/01/2026 | \$62.25 | \$14.25 | \$16.05 | \$0.00 | \$92.55 |
| | 12/01/2026 | \$63.69 | \$14.25 | \$16.05 | \$0.00 | \$93.99 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| TRAILERS FOR EARTH MOVING EQUIPMENT <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.82 | \$13.41 | \$16.01 | \$0.00 | \$66.24 |
| TUNNEL WORK - COMPRESSED AIR <i>LABORERS (COMPRESSED AIR)</i> | 12/01/2022 | \$54.81 | \$9.35 | \$18.42 | \$0.00 | \$82.58 |
| | 06/01/2023 | \$55.81 | \$9.35 | \$18.42 | \$0.00 | \$83.58 |
| | 12/01/2023 | \$57.06 | \$9.35 | \$18.42 | \$0.00 | \$84.83 |
| | 06/01/2024 | \$58.54 | \$9.35 | \$18.42 | \$0.00 | \$86.31 |
| | 12/01/2024 | \$60.01 | \$9.35 | \$18.42 | \$0.00 | \$87.78 |
| | 06/01/2025 | \$61.51 | \$9.35 | \$18.42 | \$0.00 | \$89.28 |
| | 12/01/2025 | \$63.01 | \$9.35 | \$18.42 | \$0.00 | \$90.78 |
| | 06/01/2026 | \$64.56 | \$9.35 | \$18.42 | \$0.00 | \$92.33 |
| | 12/01/2026 | \$66.06 | \$9.35 | \$18.42 | \$0.00 | \$93.83 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE) <i>LABORERS (COMPRESSED AIR)</i> | 12/01/2022 | \$56.81 | \$9.35 | \$18.42 | \$0.00 | \$84.58 |
| | 06/01/2023 | \$57.81 | \$9.35 | \$18.42 | \$0.00 | \$85.58 |
| | 12/01/2023 | \$59.06 | \$9.35 | \$18.42 | \$0.00 | \$86.83 |
| | 06/01/2024 | \$60.54 | \$9.35 | \$18.42 | \$0.00 | \$88.31 |
| | 12/01/2024 | \$62.01 | \$9.35 | \$18.42 | \$0.00 | \$89.78 |
| | 06/01/2025 | \$63.51 | \$9.35 | \$18.42 | \$0.00 | \$91.28 |
| | 12/01/2025 | \$65.01 | \$9.35 | \$18.42 | \$0.00 | \$92.78 |
| | 06/01/2026 | \$66.56 | \$9.35 | \$18.42 | \$0.00 | \$94.33 |
| | 12/01/2026 | \$68.06 | \$9.35 | \$18.42 | \$0.00 | \$95.83 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| TUNNEL WORK - FREE AIR <i>LABORERS (FREE AIR TUNNEL)</i> | 12/01/2022 | \$46.88 | \$9.35 | \$18.42 | \$0.00 | \$74.65 |
| | 06/01/2023 | \$47.88 | \$9.35 | \$18.42 | \$0.00 | \$75.65 |
| | 12/01/2023 | \$49.13 | \$9.35 | \$18.42 | \$0.00 | \$76.90 |
| | 06/01/2024 | \$50.61 | \$9.35 | \$18.42 | \$0.00 | \$78.38 |
| | 12/01/2024 | \$52.08 | \$9.35 | \$18.42 | \$0.00 | \$79.85 |
| | 06/01/2025 | \$53.58 | \$9.35 | \$18.42 | \$0.00 | \$81.35 |
| | 12/01/2025 | \$55.08 | \$9.35 | \$18.42 | \$0.00 | \$82.85 |
| | 06/01/2026 | \$56.63 | \$9.35 | \$18.42 | \$0.00 | \$84.40 |
| | 12/01/2026 | \$58.13 | \$9.35 | \$18.42 | \$0.00 | \$85.90 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |

| Classification | Effective Date | Base Wage | Health | Pension | Supplemental Unemployment | Total Rate |
|--|----------------|-----------|---------|---------|---------------------------|------------|
| TUNNEL WORK - FREE AIR (HAZ. WASTE) <i>LABORERS (FREE AIR TUNNEL)</i> | 12/01/2022 | \$48.88 | \$9.35 | \$18.42 | \$0.00 | \$76.65 |
| | 06/01/2023 | \$49.88 | \$9.35 | \$18.42 | \$0.00 | \$77.65 |
| | 12/01/2023 | \$51.13 | \$9.35 | \$18.42 | \$0.00 | \$78.90 |
| | 06/01/2024 | \$52.61 | \$9.35 | \$18.42 | \$0.00 | \$80.38 |
| | 12/01/2024 | \$54.08 | \$9.35 | \$18.42 | \$0.00 | \$81.85 |
| | 06/01/2025 | \$55.58 | \$9.35 | \$18.42 | \$0.00 | \$83.35 |
| | 12/01/2025 | \$57.08 | \$9.35 | \$18.42 | \$0.00 | \$84.85 |
| | 06/01/2026 | \$58.63 | \$9.35 | \$18.42 | \$0.00 | \$86.40 |
| | 12/01/2026 | \$60.13 | \$9.35 | \$18.42 | \$0.00 | \$87.90 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| VAC-HAUL <i>TEAMSTERS JOINT COUNCIL NO. 10 ZONE B</i> | 12/01/2021 | \$36.24 | \$13.41 | \$16.01 | \$0.00 | \$65.66 |
| WAGON DRILL OPERATOR <i>LABORERS - ZONE 1</i> | 12/01/2022 | \$43.43 | \$9.10 | \$17.57 | \$0.00 | \$70.10 |
| | 06/01/2023 | \$44.43 | \$9.10 | \$17.57 | \$0.00 | \$71.10 |
| | 12/01/2023 | \$45.68 | \$9.10 | \$17.57 | \$0.00 | \$72.35 |
| For apprentice rates see "Apprentice- LABORER" | | | | | | |
| WAGON DRILL OPERATOR (HEAVY & HIGHWAY) <i>LABORERS - ZONE 1 (HEAVY & HIGHWAY)</i> | 12/01/2022 | \$42.83 | \$9.35 | \$17.82 | \$0.00 | \$70.00 |
| | 06/01/2023 | \$43.83 | \$9.35 | \$17.82 | \$0.00 | \$71.00 |
| | 12/01/2023 | \$45.08 | \$9.35 | \$17.82 | \$0.00 | \$72.25 |
| | 06/01/2024 | \$46.56 | \$9.35 | \$17.82 | \$0.00 | \$73.73 |
| | 12/01/2024 | \$48.03 | \$9.35 | \$17.82 | \$0.00 | \$75.20 |
| | 06/01/2025 | \$49.53 | \$9.35 | \$17.82 | \$0.00 | \$76.70 |
| | 12/01/2025 | \$51.03 | \$9.35 | \$17.82 | \$0.00 | \$78.20 |
| | 06/01/2026 | \$52.58 | \$9.35 | \$17.82 | \$0.00 | \$79.75 |
| 12/01/2026 | \$54.08 | \$9.35 | \$17.82 | \$0.00 | \$81.25 | |
| For apprentice rates see "Apprentice- LABORER (Heavy and Highway)" | | | | | | |
| WASTE WATER PUMP OPERATOR <i>OPERATING ENGINEERS LOCAL 4</i> | 12/01/2022 | \$53.63 | \$14.25 | \$16.05 | \$0.00 | \$83.93 |
| | 06/01/2023 | \$54.88 | \$14.25 | \$16.05 | \$0.00 | \$85.18 |
| | 12/01/2023 | \$56.13 | \$14.25 | \$16.05 | \$0.00 | \$86.43 |
| | 06/01/2024 | \$57.43 | \$14.25 | \$16.05 | \$0.00 | \$87.73 |
| | 12/01/2024 | \$58.88 | \$14.25 | \$16.05 | \$0.00 | \$89.18 |
| | 06/01/2025 | \$60.18 | \$14.25 | \$16.05 | \$0.00 | \$90.48 |
| | 12/01/2025 | \$61.63 | \$14.25 | \$16.05 | \$0.00 | \$91.93 |
| | 06/01/2026 | \$62.93 | \$14.25 | \$16.05 | \$0.00 | \$93.23 |
| | 12/01/2026 | \$64.38 | \$14.25 | \$16.05 | \$0.00 | \$94.68 |
| For apprentice rates see "Apprentice- OPERATING ENGINEERS" | | | | | | |
| WATER METER INSTALLER <i>PLUMBERS & GASFITTERS LOCAL 12</i> | 09/04/2022 | \$63.49 | \$14.07 | \$18.36 | \$0.00 | \$95.92 |
| | 02/26/2023 | \$65.19 | \$14.07 | \$18.36 | \$0.00 | \$97.62 |
| | 09/03/2023 | \$66.94 | \$14.07 | \$18.36 | \$0.00 | \$99.37 |
| | 03/03/2024 | \$68.74 | \$14.07 | \$18.36 | \$0.00 | \$101.17 |
| | 09/01/2024 | \$70.54 | \$14.07 | \$18.36 | \$0.00 | \$102.97 |
| | 03/02/2025 | \$72.34 | \$14.07 | \$18.36 | \$0.00 | \$104.77 |
| For apprentice rates see "Apprentice- PLUMBER/PIPEFITTER" or "PLUMBER/GASFITTER" | | | | | | |

Additional Apprentices Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentices ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours.)

Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof, unless otherwise specified.

** Multiple ratios are listed in the comment field.

*** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.

**** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 01 00 00
GENERAL REQUIREMENTS

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 11 00

SUMMARY OF WORK

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 SCOPE

- A. Project Description: This project is located at Birch Meadow Park, Reading, MA 01867.
 - 1. Protection of existing structures, roadways, parking areas, utilities, landscape areas and associated facilities as indicated on the Drawings
- B. Site Preparation
 - 1. Install sedimentation and erosion control measures, construction fencing and construction entrances as indicated on the Drawings.
 - 2. It is assumed that this project will generate excess topsoil that is kept onsite. Excess topsoil shall be used to build the landscape berm north of the proposed track. Topsoil used to build the landscape berm does not need to be screened; only the top 6" of loam spread on top of the landscape berm needs to be screened.
- C. Base Bid Project
 - 1. The proposed project includes the new construction of two free-standing structures covered by a pavilion roof. one structure houses two unisex restrooms and a mechanical/storage space totaling 310 sf. the other structure will be used entirely for storage, totaling 320 sf. the open pavilion space is 760 sf.
 - a. The building is classified as Use Group U, Utility and S-2 storage.
 - b. The construction is VB unprotected. per table 503 the minimum allowable building size is 1 story/5,500 sf.
 - c. The buildings are unconditioned and not required to meet the provisions of the IEEC. they are to be used May-November.
 - d. The buildings shall be fully accessible and meet the requirements of the ADA and MAAB.
- A. In addition, the work under the Contract includes:
 - 1. Work outside the Project Site as called for in the Contract Documents and as required for the performance of the Work.
 - 2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
 - 3. Providing and restoring, where appropriate, all temporary facilities.
- B. Alternates:

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

1. Alternates for upgrades to wood cladding and structural rafters shall be priced accordingly. Refer to Section 01 23 00 – ALTERNATES.

1.02 PERMITS AND FEES

- A. The Contractor, at its cost, shall schedule, secure and obtain all permits, approvals, licenses, and inspections necessary for the proper execution of the work under all sections of this project.
- B. The Contractor shall coordinate all its work with appropriate Town of Reading Departments and Agencies as required by the Contract Documents.

1.03 TIME OF COMPLETION

- A. In accordance with the General Conditions, the Work shall be commenced at the time stated in the Notice to Proceed and shall be completed as noted in General Instructions to Bidders and Section 01 70 00 – PROJECT CLOSEOUT.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 22 00

UNIT PRICES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 REQUIREMENTS

- A. Unit prices for changes to the work not part of the Base Bid will be paid in accordance with unit prices listed by the Contractor on the Schedule of unit prices, based on quantities measured in the field.
- B. All unit prices shall include their pro-rata share of all costs for overhead, profit, bond, materials, equipment and disposal required to complete the work item. The Contractor's mark-up for changes to the work shall not exceed 15% and shall be inclusive of overhead, profit, and additional bonding requirements.
- C. The Owner may choose not to approve any or all unit prices if it deems the unit price unreasonable. In this case, the change order process described in the general conditions will be used for work described in the unit price schedule, when any change of the base contract scope is required.

1.03 APPLICABILITY OF UNIT PRICES

- A. The payment lines shall be as indicated in the Contract Documents.
- B. Prior to commencing any change to the work involving removal or placement of materials set forth in the schedule of unit prices, the Contractor shall notify the Landscape Architect/Civil Engineer in sufficient time to permit proper measurements to be taken on behalf of the Owner. Only quantities which have been approved in writing by the Landscape Architect/Civil Engineer and/or Owner will be considered in the determination of adjustments to the contract sum.
- C. Performance of work which is not required under the Contract Documents or which is not authorized by Change Order, whether or not such work item is set forth hereunder as a Unit Price item, shall not be considered cause for extra payment. The Contractor will be held fully responsible for such unauthorized work, including the performance of all corrective measures required by the Landscape Architect/Civil Engineer and/or Owner.

1.04 SCHEDULE OF UNIT PRICES

- A. The List of proposed unit prices for the above referenced project are included in the Bid Form for completion by the Contractor.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 23 00

ALTERNATES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 SCOPE

- A. This Section lists the Alternates, which appear in the Contract Documents. Consult the individual Sections for requirements applicable to all alternates
- B. Bid prices for each Alternate shall include overhead, profit, and all other expenses incidental to the Work under each Alternate.
- C. The Contactor and Subcontractors shall be responsible for examining the scope of each Alternate generally defined herein and for recognizing modifications to the Work caused by the Alternates and including the cost thereof in the bid price.

1.03 ALTERNATE #1 – WOOD CLADDING

- A. Upgrade to PT 1x3 slats with stain. (Base Bid – Red Cedar 1x3 Slats)

1.04 ALTERNATE #2 – STRUCTURAL RAFTERS

- A. Upgrade to 2x12 rafters, spaced 24" o.c. (Base Bid – 1 1/4" LVL rafters @ 16 o.c)

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 31 19

PROJECT MEETINGS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 PROJECT MEETINGS

- A. Preconstruction Conference: Conduct a preconstruction conference prior to beginning work on site. Require all major subcontractors and suppliers to attend. In general, the meeting shall cover the following subjects:
1. Creation of project team directory listing contract person for each organization.
 2. Issuance of Contract Documents.
 3. Reviewing of project constraints and work hours.
 4. Unloading policies, storage locations, temporary office locations, and temporary facilities.
 5. First aid, safety, and security procedures.
 6. Cleaning, housekeeping, and waste removal.
 7. Change order requirements.
 8. Progress payment requirements.
 9. Submittal requirements, schedules, and procedures.
 10. Record document requirements and procedures.
 11. Other subjects as determined by the Contactor, Architect, and Owner.
- B. Regular Progress Meetings: Conduct Progress Meetings to aid coordination and planning of the work and to create a forum to resolve coordination and scheduling problems and conflicts. Project meetings will be held as required at the job site. Special project meetings may be called at any time by the Owner and/or Architect, and shall be attended by the Contractor and any required Subcontractors.
1. Chairperson and Minutes: The Contractor will chair the meetings and will prepare written meeting minutes (as necessary).
 2. The Contractor shall require appropriate representatives of all major subcontractors and suppliers to attend each Progress Meeting as required. Representatives of Contractor, Subcontractor, and suppliers who are present at Progress Meetings shall have the full authority to commit their respective organizations to decisions, commitments, and agreements made at Progress Meetings.
 3. Progress Meeting Agenda: Progress Meetings shall have at least the following agenda:
 - a. Review and approval of minutes and record of previous meetings.
 - b. Review progress of work, Progress Schedule, and status of Submittals and Lead Time Items.
 - c. Identify problems that impede planned progress.
 - d. Develop corrective measures and procedures to maintain planned schedule.
 - e. Review apparent conflicts and other problems and develop corrective measures.

PROJECT MEETINGS

01 31 19-1

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

- f. Monthly review of payment applications.
- g. Pre-installation discussions regarding specific project items.
- h. Other current business.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 30 00

SUBMITTALS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 GENERAL PROCEDURES FOR SUBMITTALS

- A. Timeliness – The Contractor shall transmit each submittal to the Architect at least 5 days in advance of performing related Work or other applicable activities, so that the installation will not be delayed by processing time, including, disapproval and re-submittal (if required), coordination with other submittals, testing, purchasing, fabrication, delivery, and similar sequenced activities. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect in advance of the Work.
- B. Sequence – The Contractor shall transmit each submittal in a sequence which will not result in the approval having to be later modified or rescinded by reason of subsequent submittals which should have been processed earlier or concurrently for coordination.
- C. Contractor's Review and Approval – Only submittals received from and bearing the stamp of approval of the Contractor will be considered for review by the Architect. Submittals shall be accompanied by a transmittal notice, stating name of Project, date of submittal, "To" or "From" (Contractor, Subcontractor, Installer, Manufacturer, Supplier), Specification Section or Drawing Number to which the submittal refers, purpose (first submittal, re-submittal), description, remarks, distribution record, and signature of transmitter.
- D. Any reference as to a specific type or manufacturer in these specifications is for identification purposes only. Equivalent products will be considered. In the event that samples or specifications on equivalent products are required, it will be at the vendor's expense.
- E. Or-Equivalents – On the transmittal, or on a separate sheet attached to the transmittal, the Contractor shall direct attention to any deviations including minor limitations and variations, from the Contract Documents.
 - 1. The Contractor and all Subcontractors shall submit to the Architect for consideration of any Or-Equivalent substitution, a written point by point comparison containing the name and full particulars of the proposed product to the product named or described in the Contract Documents.
 - 2. Such submittal shall in no event be made later than 5 calendar days prior to the incorporation of the item in the Work. In any case in which the time period specified in the Contract Documents from the Notice to Proceed to Substantial Completion is less than 5 days, the Architect can waive this requirements.
 - 3. Upon receipt of a written request for approval of an Or-Equivalent substitution, the Architect shall investigate whether the proposed item shall be considered equivalent to the item named or described in the Contract Documents. Upon conclusion of the investigation, the Architect shall promptly advise that the item is, or is not, considered acceptable as an Or-Equivalent substitution. Such written notice must have the concurrence of the Owner.

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

4. In no case may an item be furnished on the Work other than the item named or described, unless the Architect, with the Owner's concurrence, shall consider the item equivalent to the item so named or described.
 5. The equivalency of items offered as "Equivalent To" items named or described shall be proved to the satisfaction of the Architect at the expense of the Contractor or Subcontractor submitting the substitution.
 6. The Architect and/or the Owner may require that full size samples of both the specified and proposed products be submitted for review and evaluation. The Contractor or Subcontractor, as the case may be, shall bear full cost for providing, delivering, and disposal of all such samples.
 7. The Contractor or Subcontractor, as the case may be, shall assume full responsibility for the performance of any item submitted as an "Or-Equivalent" and assumed the costs of any changes in any Work that may be due to such substitutions.
- F. Processing – All costs for printing, preparing, packaging, submitting, resubmitting, and mailing, or delivering submittals required by this Contract shall be included in the Contract Sum.

1.03 ARCHITECT ACTION

- A. The Architect will review the Contractor's submittals and return them with one of the following actions recorded thereon by appropriate markings:
1. Final Unrestricted Release: Where marked "No Exception Taken" the Work covered by the submittal may proceed provided it complies with the requirements of the Contract Documents.
 2. Final-But-Restricted-Release: When marked "Reviewed as Noted" or "For Your Information and Use" the Work may proceed provided it complies with the Architect notation or corrections on the submittal and complies with the requirements of the Contract Documents. Acceptance of the Work will depend upon these compliances.
 3. Returned for Resubmittal: When marked "Revise & Resubmit", "Incomplete Submittal" or "Rejected", the Work covered by the submittal (purchasing, fabrication, delivery, or other activity) should not proceed. The submittal should be revised or a new submittal resubmitted without delay, in accordance with the Architect notations stating the reasons for returning the submittal.

1.04 SUBMISSION OF SHOP DRAWINGS & PRODUCT DATA

- A. Shop drawings shall be complete, give all information necessary or requested in the individual section of the specifications. They shall also show adjoining Work and details of connection thereto.
- B. Shop drawings shall be for whole systems. Partial submissions will not be accepted.
- C. The Architect reserves the right to review and approve shop drawings only after approval of related products data and samples.
- D. Shop drawings shall be properly identified and contain the name of the project, name of the firm submitting the shop drawings, shop drawing number, date of shop drawings and revisions, Contractor's stamp of approval, and sufficient spaces near the title block for the Architect stamp.

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

- E. The Contractor shall submit to the Architect one legible, reproducible electronic copy of each shop drawing. A transmittal notice shall accompany each submittal.
- F. When the submittal is returned by the Architect with the stamp "Revise & Resubmit", "Incomplete Submittal" or "Rejected", the Contractor shall correct the original drawings or prepare new drawings and resubmit a electronic copy and two prints thereof to the Architect for approval. This procedure shall be repeated until the Architect approval is obtained.
- G. When the submittal is returned by the Architect with the stamp "No Exception Taken", the Contractor shall provide and distribute the prints for all Contractor and Subcontractors use, and in addition submit, within 10 calendar days after approval, 5 prints to the Architect.
- H. The Contractor shall maintain one full set of approved shop drawings at the site.

1.05 SUBMISSION OF SAMPLES

- A. Unless otherwise specified in the individual section, the Contractor shall submit two specimens of each sample.
- B. Samples shall be of adequate size to permit proper evaluation of materials. Where variations in color or in other characteristics are to be expected, samples shall show the maximum range of variation. Materials exceeding the variation of approved samples will not be approved on the Work.
- C. Samples that can be conveniently mailed shall be sent directly to the Architect, accompanied by a transmittal notice. All transmittals shall be stamped with the Contractor's approval stamp of the material submitted.
- D. All other samples shall be delivered at the field office of the Project Representative with sample identification tag attached and properly filled in. Transmittal notice of sample so delivered with the Contractor's stamp of approval shall be mailed to the Architect.
- E. If a sample is rejected by the Architect, a new sample shall be resubmitted in a manner specified herein above. This procedure shall be repeated until the Architect approves the sample.
- F. Samples will not be returned unless return is requested at the time of submission. The right is reserved to require submission of samples whether or not particular mention is made in the specifications.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 50 00

TEMPORARY FACILITIES

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. The Contractor shall be responsible for providing and maintaining all temporary facilities until Substantial Completion. Removal of such, prior to Substantial Completion must be with the concurrence of the Architect. The Contractor bears full responsibility for re-providing any facility removed prior to Substantial Completion if required for the Work. NOTE: There will no access to the Reading Public School buildings during the project unless specifically required under the scope of work (any work that may be required in the buildings will require accompaniment from the Owner).
- C. Removal of all temporary facilities shall be a condition precedent to Substantial Completion unless directed otherwise by the Landscape Architect/Civil Engineer or specifically noted in the Specifications.
- D. The Contractor must comply with all safety laws and regulations of the Commonwealth of Massachusetts, the United States Government, and local government agencies applicable to work under this contract.

1.02 TEMPORARY TELEPHONES

- A. Telephone service, in the form of a cellular phone and beeper, shall be available on site.
- B. The Contractor shall pay for all equipment charges for the foregoing temporary telephones and for all calls and charges in connection therewith.

1.03 TOILETS

- A. The Contractor shall provide portable bathroom facilities as required.

1.04 TEMPORARY CONSTRUCTION FENCE

- A. The Contractor shall be responsible for providing and maintaining temporary fencing or barricades around the construction and additional fencing or barricades as may be necessary to assure the safety of all persons authorized or unauthorized. Such protective measures shall be located and constructed as required by local, state and federal ordinances, laws, codes or regulations at no additional cost to the Owner.

1.05 TEMPORARY STRUCTURES AND MATERIAL HANDLING

- A. Materials shall be handled, stored, installed, cleaned, and protected in accordance with the best practice in the industry and, except where otherwise specified in the Contract Documents, in accordance with manufacturer's specifications and directions.

1.06 TEMPORARY WATER

- A. The Contractor may make use of the water supply at the site (if available) for construction purposes, provided the permission of the Owner is obtained beforehand and only as long as the water is not used wastefully.

TEMPORARY FACILITIES

01 50 00-1

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. The Contactor shall provide all necessary connections, piping and hoses to utilize the available sources of water.
- C. The Contractor shall provide an adequate supply of cool drinking water with individual drinking cups for personnel on the job.
- D. In the event that water is unavailable, the Contractor shall be responsible for providing water from off site sources.

1.07 TEMPORARY ELECTRICITY

- A. The Contractor may make use of the electricity available at the site, metered and paid for by the Owner, provided that the Contractor shall supply proper adapters and extension cords. Where heavy-duty electric equipment drawing current in excess of 15 amp. is involved, the Contractor shall provide temporary service to supply the power. The temporary electric service shall include, but not be limited to labor, materials, and equipment necessary to supply temporary power of adequate capacity for the project. The power company will furnish transformers and meters, when required by the power company, and the Contractor shall bear the costs.
- B. Temporary electrical work shall be performed under the direct supervision of at least one master electrician, who will be always present on the project when such work is being performed.
- C. All temporary work shall be provided in conformity with the National Electric Code, State Laws and requirements of the power company.
- D. The Contractor shall dismantle and completely remove from the project site, temporary electrical facilities only when the permanent electrical system is operational.

1.08 WINTER CONDITIONS

- A. Remove snow and ice which may impair progress of work, be detrimental to workmen or impair trucking, delivery or moving of materials at job site, or prevent adequate drainage at site or adjoining areas.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 70 00

PROJECT CLOSEOUT

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 RELATED DOCUMENTS

- A. Consult the individual sections of the specifications for specific items required under those sections.

1.03 SUBSTANTIAL COMPLETION

- A. Prior to requesting Substantial Completion as provided in the General Conditions the Contractor shall make a thorough inspection of the Work. During this inspection the Contractor shall prepare a comprehensive list of all items remaining to be completed or corrected. This list shall include all remaining Contractor and Subcontractor items to be provided under the Contract Documents.
- B. Upon completion of the list, the Contractor shall notify, in writing, the Owner's Representative that the Work is Substantially Complete. The Owner's Representative shall then conduct a similar thorough inspection. If the Owner's Representative agrees that the Work is Substantially Complete, the Owner's Representative will promptly make a thorough inspection and prepare a monetized punch list, setting forth in accurate detail any items on the Contractor's list and additional items that are not acceptable or incomplete. The Contractor shall coordinate all Subcontractors to achieve prompt completion of the punch list.
- C. The Contractor shall not be relieved of the responsibility to provide Contract items left off of the Owner's Representative's punch list.
- D. If the Owner's Representative determines that the Work is not Substantially Complete, the Owner's Representative shall inform the Contractor of those items that must be completed before the Owner's Representative will prepare a monetized punch list. Upon completion of those items, the Contractor shall again request the Owner's Representative to prepare a punch list.
- E. When the punch list has been prepared, the Owner's Representative will arrange a meeting with the Contractor and Subcontractors to identify and explain all punch list items and answer questions on work, which must be done before final acceptance.
- F. The Owner's Representative may revise the punch list, from time to time, to ensure that all items of Work are properly completed.
- G. The Owner's Representative shall prepare the Certificate of Substantial Completion in accordance with the General Conditions.

1.04 OPERATING AND MAINTENANCE INSTRUCTIONS

- A. Prior to final payment and completion, the Contractor shall provide all Operating Manuals and Maintenance Instructions as required by the Contractor Documents and as requested by the Owner.

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Consult the individual sections of the specifications for the specific requirements for those sections and for further details and descriptions of the requirements
 - C. Operating Instructions and Manuals:
 - 1. The Contractor shall collect all of the above instructions and copies of all approved submittals and bind them into three complete sets in three ring binders, and submit them to the Owner's Representative who will deliver them to the Owner.
 - 2. Submission of operating and maintenance instructions shall be a condition precedent to the final payment.
 - D. Instructions of Owner's Personnel:
 - 1. Where specified in the individual sections of the specifications, the Contractor and Subcontractor shall instruct the Owner's personnel at the site, in the use and maintenance of equipment installed under the Contract.
 - 2. Submission to the Owner's Representative of a certificate of compliance to this requirement, signed by the Contractor and the Owner's Representative, shall be a condition precedent to final payment.
- 1.05 FINAL COMPLETION
- A. Related Requirements:
 - 1. The Contractor's attention is directed to the General Conditions of the Contract.
 - B. Final Completion:
 - 1. Within 14 days after Substantial Completion, if any of the items on the Owner's Representative's punch list are not complete or if the Contractor has not provided the appropriate Record Drawings, Operating Manuals, Warranties, Guarantees, or Spare Parts, the Owner's Representative may assign a monetary value for each incomplete item as well as any other items per the General Laws of the Commonwealth of Massachusetts.
 - 2. The Contractor shall provide the Owner's Representative with a Notarized Contractor's Certificate and Release and an appropriate Application for Payment. This Application shall be for an amount equal to the remaining balance of the Contract less the amount the Owner's Representative's monetized punch list and any other items per the General Laws of the Commonwealth of Massachusetts.
 - 3. The Contractor shall complete all remaining Work in accordance with the provisions of the General Conditions of the Contract.
 - 4. Upon completion of all remaining items, and after receipt of all appropriate Shop Drawing, Record Drawings, Operating Manuals, Warranties, Guarantees and Spare Parts required by the Contract Documents, The Contractor shall provide a notarized Contractor's Certificate and Release and a final Application for Payment to complement this closeout process.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 78 36

WARRANTIES

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. This Section contains general information that applies to all work performed under the Contract and is inherently made a part of each specification section.

1.02 WARRANTY REQUIREMENTS

- A. Warranties Required: All materials, equipment, and work of the Project shall be covered by comprehensive written warranties. Refer to individual specification sections for additional specific warranty requirements. For work not specified to have additional specific warranty requirements or warranties longer than one year, provide a comprehensive one-year written warranty signed by the Contractor and Subcontractor.
 - 1. Warranty Limitations: Warranties required under the Contract are in addition to and not in lieu of any remedy or warranty to which the Owner is entitled under law. Warranties required under the Contract shall not be interpreted as a waiver of any of the Owner's rights.
 - 2. Warranty Procurement: Do not purchase or subcontract for material, equipment or work until it has been verified that parties required to provide and sign warranties are willing to do so and that warranty language, content, and form are approved by the Owner. Special warranty terms, conditions, and requirements are often specified.
 - 3. Warranties are Irrevocable: After a specific warranty's language, content, and form has been approved by the Owner and after the work covered by a specific warranty is subcontracted or purchase order given to a manufacturer, the warrantor shall not revoke or withhold the warranty for any reason including, without limitation, non-payment or incomplete payment by any party other than the owner, except that if the work has not been installed in compliance with the warrantors installations requirements, then the warranty may be temporarily withheld until corrections are made and the warrantors installation requirements have been met.
 - 4. Warranty Forms: Submit written warranty forms to Owner through Architect for approval prior to award of subcontract, submission or purchase order, and execution of warranty. The manufacturers standard warranty forms may not comply with the requirements of the Contract Documents. Special warranty terms, conditions, and requirements are often specified and required.
 - a. Standard Warranty Form: In the absence of specific written permission by the Owner, provide all warranties including the Contractors comprehensive one year warranty on fully executed copies of the "Standard Warranty Form" included in this Section.
 - 5. Executed Warranties: Furnish original or certified copies of each executed warranty to Owner for warranty and maintenance manuals. Comply with requirements of Section 01 78 39, Project Record Documents.
 - 6. Work Covered by Warranty: Contractor and warrantor shall remove and replace other

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

work damaged as a result of failure of warranted materials, equipment, or work, and shall remove or replace other work which must be removed and replaced to provide access to and replacement of materials, equipment, or work covered under warranty. Warranties shall include full payment to the Owner for work related to warranty repair or replacement including, without limitation, painting.

7. Pro-Rated Warranties: Unless otherwise specified or approved in writing by Owner, each warranty shall cover full cost of replacement or repair, and shall not be pro-rated on basis of useful service life or warranty period.
8. Warranty Extensions; Work repaired or replaced under warranty shall be provided with a new warranty equal to the full length of the original warranty. The new warranty shall begin on the date of Owner's acceptance and use of the replaced or repaired item.
9. Warranty Effective Starting Date: All warranties shall begin on Date of Final Acceptance of the entire project or Owner's acceptance of the work or item covered by the warranty, whichever is later, and the warranty coverage shall continue for the period specified. If no specific warranty period is specified, the warranty shall extend for one year (365 days).
10. Contractor's Responsibilities for Warranties: The Contractor shall implement and invoke all guarantees and warranties provided by subcontractors, manufactures, material suppliers, and other parties, including warranties longer than one-year duration. The Contractor shall make every effort to facilitate, expedite, and aid the Owner in warranty claims the Owner may have throughout the warranty periods.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 01 78 39

PROJECT RECORD DOCUMENTS

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 - GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.

1.02 RECORD DRAWINGS

- A. Record Drawings shall consist of all the Contract Drawings.
- B. From the sets of electronic drawings furnished by the Owner, the Contractor shall print and reserve one set for record purposes. From this set, the Contractor shall detach and furnish, at no charge to all Subcontractors, the drawings of their portion of the Work for the same purposes.
- C. The Contractor and the above Subcontractors shall keep their record set on the site at all times and note on it in colored ink or pencil, neatly and accurately, at the end of each working day, the exact location of their work as actually installed. This shall include the location and dimensions of underground and concealed Work, and any variations from the Contract Drawings. All changes, including those issued by Addendum, Change Order or instructions by the Owner's Representative shall be recorded. Record Drawings shall be prepared for the entire project and include all Work.
- D. The Owner's Representative may periodically inspect the Record Drawings at the site. The proper and current maintenance of the information required on these drawings shall be a condition precedent to approval of the monthly requisitions for periodic payment.
- E. At Substantial Completion the Contractor shall submit the complete set of Record Drawings to the Owner's Representative. The Owner's Representative will review these drawings and return them to the Contractor with necessary comments.
- F. Upon receipt of an AutoCAD compatible disk or electronic file of the original contract drawings from the Owner's Representative, the Contractor and Subcontractors shall transfer the As-Built information shown on the Record Drawings. This electronic drafting shall be done by an experienced CAD operator and match the original Drawings.
- G. From the disks, the Contractor shall, at its own expense, prepare five sets of hardcopies on bond and the electronic files on a DVD to the Owner's Representative. Each sheet shall be clearly marked "Record Drawing" and bear the date of printing. Submission of accurate Record Drawings and their approval by the Owner's Representative shall be a condition precedent to final payment.

1.03 AS-BUILT SURVEY

- A. Contractor shall provide a third party as-built survey stamped by a licensed land surveyor in the Commonwealth of Massachusetts of the final site conditions. Survey of the new work shall tie into the existing survey to show actual site conditions post-construction.
 - 1. Three (3) original stamped copies will be provided to the Owner as well as a pdf and CAD file for the final as-built survey.

TOWN OF READING – BIRCH MEADOW PARK | RESTROOM AND SUPPORT BUILDING

Reading, Massachusetts

Bid Documents

January 27, 2023

END OF SECTION

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 04 00 00

MASONRY

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 04 22 00

CONCRETE UNIT MASONRY

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS

- A. Attention is directed to the CONTRACT AND GENERAL CONDITIONS and all Sections within DIVISION 01 00 00 – GENERAL REQUIREMENTS, which are hereby, made a part of this Section of the Specifications.
- B. Examine all other Sections of the Specifications for requirements, which affect work of this Section whether or not such work is specifically mentioned in this Section.
- C. Coordinate work with that of all other trades affecting, or affected by work of this Section. Cooperate with such trades to assure the steady progress of all work under the Contract.

1.02 DESCRIPTION OF WORK

- A. Work Included: Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:
 - 1. Split Face architectural concrete masonry units

1.03 RELATED WORK

- A. Masonry Mortaring
- B. Masonry Grout
- C. Masonry Anchorage and Reinforcement
- D. Masonry Accessories
- E. Structural Steel Framing

1.04 REFERENCES

- A. American Concrete Institute (ACI):
 - 1. ACI 117 - Standard Specifications for Tolerances for Concrete Construction and Materials.
 - 2. ACI 530 - Building Code Requirements for Masonry Structures.
 - 3. ACI 530.1 - Specification for Masonry Structures.
- B. American Society for Testing and Materials (ASTM):
 - 1. ASTM C 270 – Standard Specification for Mortar for Unit Masonry
 - 2. ASTM C 90 - Specification for Load-bearing Concrete Masonry Units
 - 3. ASTM C 140 - Methods of Sampling and Testing Concrete Masonry Units.

CONCRETE UNIT MASONRY

04 22 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.05 QUALITY ASSURANCE

- A. Construction: Construct masonry in accordance with requirements of ACI 530 and 530.1.
- B. Special Inspection and Testing: Provide inspection and testing in accordance with the Building Code and as noted on Drawings and will be performed under provisions of Section 01450.

1.06 SUBMITTALS

- A. Specified in Section 01330 -Submittal Procedures
- B. Color Selection
 - 1. For Initial Selection: Unit masonry sample box-sized samples showing the full range of colors and textures available for each different exposed masonry unit required
 - 2. For Verification Purposes: Full-size units or full face shells showing the full range of colors and textures expected in the completed project

1.07 DELIVERY, STORAGE AND HANDLING

- A. Deliver and handle architectural masonry materials as to prevent damage
 - 1. Deliver architectural masonry units wrapped and on wooden pallets
 - 2. Cover stacked masonry units with protective waterproof covering that will allow air circulation between blocks and pallets to prevent excessive moisture accumulation
- B. Store architectural masonry units in a location as to minimize handling, exposure to excessive moisture, contaminants, corrosion, and materials that could cause staining.
- C. Store mortar materials off the ground with waterproof covering and in a dry location

1.08 PROJECT CONDITIONS

- A. Environmental Requirements (Cold Weather): Follow the requirements of the MIC Hot and Cold Weather Construction.
- B. Environmental Requirements (Hot Weather): Follow the requirements of the MIC Hot and Cold Weather Construction.

PART 2 – PRODUCTS

2.01 Manufacturers

- A. Acceptable Manufacturers:
 - 1. CEMEX USA, Atlantic Region; Telephone (800) 786-5620 www.cemexusa.com
- B. Substitutions:
 - 1. Products of equal quality must be submitted and approved by Architect

CONCRETE UNIT MASONRY

04 22 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.02 Concrete Masonry Units

A. Concrete Masonry Units – General:

1. Provide concrete masonry standard units as indicated and scheduled with face dimensions of 16 inches long by 8 inches high, nominal; 15-5/8 inches long by 7-5/8 inches high, actual, by thicknesses indicated on drawings
2. Provide special masonry units for bond beams, control and expansion joints, and lintels.
3. Hollow and solid load-bearing block: ASTM C-90, normal weight, 125 pounds per cubic foot dry weight minimum.

B. Architectural Concrete Masonry Units: CEMEX USA Architectural Block; all colored units produced with integral water repellent admixture – DryBlock by WR Grace, or approved equal.

1. Face: Split Face; rough exposed aggregate, uneven natural split texture
 - a. Manufactured with a vertical chamfered edge on each side to insure a controlled, straight split on the unit face shell
 - b. Size(s): As indicated on drawings
 - c. Color(s): As selected by Architect from manufacturer's full line
 - d. Shapes: .Provide special masonry units for bond beams, corners, sills, caps, control and expansion joints, and lintels

PART 3 – EXECUTION

3.01 INSPECTION

A. Prior to the start of masonry construction the Contractor shall verify:

1. Foundations are constructed with tolerances conforming to ACI 117.
2. Reinforcing dowels are positioned in accordance with Project Drawings.
3. Verify items provided by other Sections of the Work are properly sized and located.

B. If conditions are not met notify the Architect/Owners Representative.

3.02 PREPARATION

A. Establish Lines, Levels, and Coursing:

1. Protect lines from disturbance.
2. Use non-corrosive materials in contact with masonry.
- B. Surface Preparation: Prior to placing masonry units remove, loose aggregate or any other materials that would prevent mortar from bonding to the foundation.

3.03 COURSING AND BONDING

A. Placement: Place masonry units to lines and levels indicated on plans.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Uniformity: Maintain masonry coursing and horizontal joints of uniform width and thickness.
- C. Bond Patterns: Place masonry units in running bond pattern unless otherwise noted on plans.
- D. Course Height: Course one masonry unit and one mortar joint to equal 8 inches (4 inches for ½ high units)

3.04 PLACING

A. Bed and Head Joints:

- 1. Joint Thickness:
 - a. Construct 3/8-inch bed and head joints unless otherwise indicated.
 - b. Construct bed joint at starting course on foundation not less than ¼ inch and not more than ¾ inch.
- 2. Fill holes not specified in exposed and below grade masonry with mortar.
- 3. Tool head and bed joints concave unless below grade or above ceiling height and to be concealed.
 - a. Use tool with large enough radius that joint is not raked free of mortar.
- 4. Remove masonry protrusions extending ½ inch or more into cells or cavities to be grouted.

B. Unit Placement:

- 1. Lay masonry units with bed and head joints filled from the faces of the units to a distance in not less than the thickness of the face shell.
 - a. Vertical cells to be grouted are aligned and unobstructed openings for grout must be provided in accordance with drawings.
- 2. Keep cavity airspace and weep holes clean of mortar, clean out promptly if mortar falls into cavity airspace or plugs weep holes.
- 3. Remove excess mortar
 - a. Protect wall from mud splatter and mortar droppings.
 - b. Place masonry units such that mortar does not run down the face of the wall or smear the masonry face.
- 4. Adjustments:
 - a. Do not shift or tap masonry units after mortar has taken initial set.
 - b. Where adjustments must be made, remove mortar and replace.
- 5. Protection: Protect wall cavities during construction to prevent rainwater saturation and excessive moisture accumulation.

3.05 TOLERANCES: Erect masonry within the following tolerances from specified dimensions:

A. Dimension of Elements:

- 1. In cross-section or elevation: minus ¼ inch, plus ½ inch
- 2. Mortar joint thickness:
 - a. Bed joints: plus or minus 1/8 inch
 - b. Head joints: plus 3/8 inch to minus ¼ inch
 - c. Collar joints: plus 3/8 inch to minus ¼ inch

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3.06 CLEANING

- A. In-Progress Cleaning: Clean unit masonry as work progresses within seven days
- B. Final Cleaning: Clean exposed masonry as follows:
 - 1. Clean masonry before installing windows, door, finished flooring, metal fixtures, hardware, light fixtures, roofing materials and other non-masonry items.
 - 2. If already installed, protect from cleaning solution with polyethylene film or waterproof masking tape.

END OF SECTION

CONCRETE UNIT MASONRY

04 22 00

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 07 00 00
THERMAL AND
MOISTURE PROTECTION

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 07 25 00

WEATHER BARRIERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. A blackout membrane installed behind exterior wall open joint rain screen cladding.

1.02 RELATED WORK

- A. Rough Carpentry

1.03 REFERENCES

- A. ASTM D 882 Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers – Tension
- B. ASTM D 4073 Standard Test Method for Tensile-Tear Strength of Bituminous Roofing Membranes
- C. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- D. ASTM E2178 - Standard Test Method for Air Permeance of Building Materials.

1.04 SUBMITTALS

- A. Product Data:
 - 1. Manufacturer's data sheets on each product to be used.
 - 2. Preparation instructions and recommendations.
 - 3. Storage and handling requirements and recommendations.
 - 4. Typical installation methods.

1.05 QUALITY ASSURANCE

- A. Installer Qualifications: Shall be experienced in applying the same or similar materials and shall be specifically approved in writing by Manufacturer.
- B. Single-Source Responsibility: Obtain blackout membrane and detail flashing single manufacturer.
- C. Product and Accessories shall comply with all state and local regulations controlling use of volatile organic compounds (VOCs).

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store products in a clean, dry, protected location and within temperature range required by Manufacturer.
- B. Dispose of waste in accordance with local, state and federal regulation

1.07 PROJECT CONDITIONS

- A. Apply product and accessories within approved ambient and substrate temperature range stated in manufacturer's literature.

WEATHER BARRIERS

07 25 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Do not apply product or accessories over incompatible materials.
- C. Observe safety and environmental measures indicated in manufacturer's SDS, and mandated by federal, state and local regulations.

1.08 WARRANTY

- B. Manufacturer's Warranty: Provide manufacturer's standard limited warranty.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Basis of Design: Fire Resist™ CCW-705 RS by Carlisle Coatings & Waterproofing, Incorporated (CCW). 900 Hensley Lane, Wylie, TX 75098. Phone 1-800-527-7092. Website <http://www.carlisleccw.com>

B. Other equivalent products and manufacturers as approved by Design Professional

2.02 ACCESSORIES: Provide from same manufacturer as air barrier membrane.

- A. Detail Flashing: Pressure-sensitive tape consisting of black HDPE film coated with non-asphalt butyl adhesive
 - 1. CCW: BRT-801
 - 2. Other equivalent product by same manufacturer as air barrier membrane
- B. Contact Adhesive: Section 07 25 00 CCW-705 RS by Carlisle Coatings & Waterproofing. Updated September 10, 2021
 - 1. CCW: Travel-Tack or CAV-GRIP™ Aerosol Spray
 - 2. Others: As specified by air barrier membrane manufacturer
- C. Detail Sealant: 1-part, moisture-cure high-solids
 - 1. Barribond HP
 - 2. Others as specified by air barrier membrane manufacturer

2.03 PERFORMANCE REQUIREMENTS

- A. Product shall consist of nominal 0.028-inch (28 mils) thickness UV resistant engineered fabric of black or dark gray color. Product shall be printed with manufacturer's brand or have another means of fingerprinting for product identification.
- B. Product shall have minimum 50 Perms water vapor permeance, tested to ASTM E 96 desiccant method (A)
- D. Installed product and accessories shall be recommended by manufacturer for at least 180 days of outdoor exposure.
- E. Installed product and accessories shall have an upper service temperature limit of 180°F or higher

WEATHER BARRIERS

07 25 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine substrates, areas, and conditions affecting installation of the blackout membrane for compliance with requirements. Verify that surfaces and conditions are suitable prior to commencing Work of this section. Do not proceed with installation until unsatisfactory conditions have been corrected.
- B. Inform Architect [Consultant] [Owner] [General Contractor] in writing of
 - 1. Gaps or obstructions such as steel beams, angles, plates and projections which cannot be spanned or covered by Product or Accessories.
 - 2. Loose or missing exterior insulation
 - 3. Deficiencies in the air and water resistive barrier installation
 - 4. Anticipated problems applying Product and Accessories over substrate.

3.02 INSTALLATION

- A. Apply product in opaque wall assemblies as indicated in Project drawings.
- B. Fasten product securely in place. Minimize fastener penetrations through the wall by securing the blackout membrane using the same attachment hardware as the exterior cladding and/or exterior insulation.
- C. Provide additional fastening as required to secure the product at laps and terminations.
- D. Shingle lap sheets. Provide a minimum 6-inch end lap or overlap of neighboring sheets.
- E. Seal laps and terminations using either method 1. Apply minimum 4-inch width detail flashing Prepare surfaces accepting detail flashing with contact adhesive. 2. Bond membrane terminations and laps with contact adhesive. Then cap membrane edge with a tooled ribbon of detail sealant.
- F. Do not block wall assembly weep paths with blackout membrane, detail sealant or detail flashing
- G. Cover product and accessories with exterior cladding as soon as schedule allows. Do not leave product or accessories exposed longer than manufacturer's published limit.

3.05 CLEANING AND PROTECTION

- A. Clean products in accordance with the manufacturer's recommendations.
- B. Touch-up, repair or replace damaged products before Substantial Completion.
 - 1. Repair small tears less than 6 inches long in vapor retarder with sealing tape.
 - 2. Repair tears longer than 6 inches by cutting flap in vapor retarder 2 inches (51 mm) minimum beyond bottom and sides of tear.
 - a. Insert wider piece of vapor retarder under flap, shingle style and seal edges.
 - b. Do not cover repairs with other work before receipt of approval from Architect.

END OF SECTION

WEATHER BARRIERS

07 25 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 07 26 00

UNDERSLAB VAPOR RETARDERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Surface preparation.
- B. Application of an underslab vapor retarder.

1.02 RELATED WORK

- A. Section 03 30 00 - Concrete.
- D. Section 07 21 00 - Building Insulation

1.03 REFERENCES

- A. ASTM D1709 - 09 Standard Test Methods for Impact Resistance of Plastic Film by the Free-Falling Dart Method.
- B. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- C. ASTM E154 - Standard Test Methods for Water Vapor Retarders Used in Contact with Earth Under Concrete Slabs.
- D. ASTM E1643 - Standard Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
- E. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill Under Concrete Slabs.
- F. ASTM F1249-01 Standard Test Method for Water Vapor Transmission Rate Through Plastic Film and Sheeting Using a Modulated Infrared Sensor.

1.04 SUBMITTALS

- A. Comply with Section 01 33 00 - Submittal Procedures.
- B. Submit manufacturer's product data and application instructions.

1.05 QUALITY ASSURANCE

- A. Use an experienced installer and adequate number of skilled personnel who are thoroughly trained and experienced in the application of the vapor retarder.
- B. Obtain vapor retarder materials from a single manufacturer regularly engaged in manufacturing the product.

UNDERSLAB VAPOR RETARDER

07 26 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
- C. Protect materials during handling and application to prevent damage or contamination.
- D. Ensure membrane is stamped with manufacturer's name, product name, and membrane thickness at intervals of no more than 85" (220 cm).

1.08 ENVIRONMENTAL REQUIREMENTS

- A. Product not intended for uses subject to abuse or permanent exposure to the elements.
- B. Do not apply on frozen ground.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Basis of Design: W. R. MEADOWS, INC., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site www.wrmeadows.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 6000 - Product Requirements.

2.02 MATERIALS

- A. Plastic Vapor Retarder
 - 1. Performance-Based Specification: Vapor retarder membrane shall be manufactured from virgin polyolefin resins, and when tested according to all requirements of ASTM E1745, shall meet the following minimum performance requirements:
 - a. Maximum Water Vapor Permeance (ASTM E154 Sections 7, 8, 11, 12, 13, by ASTM E96, Method B or ASTM F1249)
 - i. As received: 0.0063 perms.
 - ii. After Wetting and Drying: 0.0052 perms.
 - iii. Resistance to Plastic Flow and Temperature: 0.0057 perms.
 - iv. Effect Low Temperature and Flexibility: 0.0052 perms
 - v. Resistance to Deterioration from Organisms and Substances in Contacting Soil: 0.0052 perms.
 - b. Puncture Resistance (ASTM D1709): >3,200 grams.
 - c. Tensile Strength ASTM E154, Section 9: 72 Lb. Force/Inch

UNDERSLAB VAPOR RETARDER

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.03 ACCESSORIES

A. Seam Tape

1. High Density Polyethylene Tape with pressure sensitive adhesive. Minimum width 4" (100 mm).

PART 3 - EXECUTION

3.01 SURFACE PREPARATION

- A. Prepare surfaces in accordance with manufacturer's instructions.
- B. Level, tamp, or roll earth or granular material beneath the slab base.

3.02 EXAMINATION

- A. Examine surfaces to receive membrane. Notify architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.

3.03 APPLICATION

- A. Install the vapor retarder membrane in accordance with manufacturer's instructions and ASTM E 1643–98.
- B. Unroll vapor retarder with the longest dimension parallel with the direction of the pour.
- C. Lap vapor retarder over footings and seal to foundation walls.
- D. Overlap joints 6" (152 mm) and seal with manufacturer's tape.
- E. Seal all penetrations (including pipes) with manufacturer's pipe boot.
- F. No penetration of the vapor retarder is allowed except for reinforcing steel and permanent utilities.
- G. Repair damaged areas by cutting patches of vapor barrier, overlapping damaged area 6" (152 mm) and taping all four sides with tape.

END OF SECTION

UNDERSLAB VAPOR RETARDER

07 26 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 07 30 10

ROOFING UNDERLAYMENT

PART 1 — GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section specifies a self-adhering sheet membrane used as underlayment for sloped roofs.

1.02 RELATED WORK

- A. Rough Carpentry
- B. Sheet Metal Roofing

1.03 REFERENCES

- A. ASTM D412 - Standard Test Methods for Vulcanized Rubber and Thermoplastic Elastomers - Tension.
- B. ASTM D461 - Standard Test Methods for Felt.
- C. ASTM D 903 - Standard Test Method for Peel or Stripping Strength of Adhesive Bonds.
- D. ASTM D1970 - Standard Specification for Self-Adhering Polymer Modified Bituminous Sheet Materials Used as Steep Roofing Underlayment for Ice Dam Protection.
- E. ASTM D3767 - Standard Practice for Rubber—Measurement of Dimensions.
- F. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.
- G. ASTM G90 – EMMAqua test.

1.04 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions.

1.05 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with requirements of authorities having jurisdiction and applicable codes at the location of the project.
- B. Manufacturer: Minimum 10 years experience producing roofing underlayment.
- C. Installer: Minimum 2 years experience with installation of similar underlayment.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials and products in unopened factory labeled packages. Protect from damage.
- B. Cover materials and store in dry condition between temperatures of 40 and 90 degrees F (5 and 32 degrees C). Use within one year of date of manufacture. Do not store at elevated temperatures as that will reduce the shelf life of the product.

ROOFING UNDERLAYMENT

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.07 PROJECT CONDITIONS

- A. Apply product and accessories within approved ambient and substrate temperature range stated in manufacturer's literature.
- B. Do not apply product or accessories over incompatible materials.

PART 2 — PRODUCTS

2.01 MANUFACTURER

- A. Manufacturer: GCP Applied Technologies, Inc, 62 Whittemore Avenue, Cambridge, MA 02140, Toll Free 866-333-3726, www.gcpat.com.
- B. Other equivalent products and manufacturers as approved by Design Professional

2.02 MATERIALS

- A. Self-Adhering Sheet Membrane Roof Underlayment: Provide Grace Ice and Water Shield by GCP Applied Technologies, Inc. with the following characteristics:
 - 1. Material: Cold applied, self adhering membrane composed of a high strength polyethylene film coated on one side with a layer of rubberized asphalt adhesive and interwound with a disposable release sheet. An embossed, slip resistant surface is provided on the polyethylene.
 - 2. Color: Gray-black.
 - 3. Membrane Thickness: 40 mil (1.02 mm) ASTM D3767 procedure A (Section 9.1).
 - 4. Tensile Strength, Membrane: 250 psi (1720 kN/m²) ASTM D412 (Die C modified).
 - 5. Elongation, Membrane: 250% ASTM D412 (Die C modified).
 - 6. Low Temperature Flexibility: Unaffected @ -20°F (-29°C) ASTM D1970.
 - 7. Adhesion to Plywood: 3.0 lbs/in. width (525 N/m) ASTM D903.
 - 8. Permeance (Max): 0.05 perms (2.9 ng/m²s Pa) ASTM E96.
 - 9. Material Weight Installed (Max): 0.3 lb/ft² (1.3 kg/m²) ASTM D461.
 - 10. Primer: Water-based Perm-A-Barrier WB Primer by GCP Applied Technologies, Inc.

PART 3 — EXECUTION

3.01 EXAMINATION

- A. Prior to start of installation, inspect existing conditions to ensure surfaces are suitable for installation of roofing underlayment. Verify flashing has been installed. Starting work indicates installers acceptance of existing conditions.

3.02 INSTALLATION

- A. Installation: Install roofing underlayment on sloped surfaces at locations indicated on the Drawings, but not less than at hips, ridges, eaves, valleys, sidewalls and chimneys, and surfaces over interior space within 36 inches (914 mm) from the inside face of the exterior wall. Strictly comply with manufacturer's installation instructions including but not limited to the following:

ROOFING UNDERLAYMENT

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1. Schedule installation such that underlayment is covered by roofing within the published exposure limit of the underlayment.
2. Do not install underlayment on wet or frozen substrates.
3. Install when surface temperature of substrate is a minimum of 40 degrees F (5 degrees C) and rising.
4. Remove dust, dirt, loose materials and protrusions from deck surface.
5. Install membrane on clean, dry, continuous structural deck. Fill voids and damaged or unsupported areas prior to installation.
6. Prime concrete and masonry surfaces using specified primer at a rate of 500-600 square feet per gallon (12-15 sqm/L). Priming is not required for other suitable clean and dry surfaces.
7. Install membrane such that all laps shed water. Work from the low point to the high point of the roof at all times. Apply the membrane in valleys before the membrane is applied to the eaves. Following placement along the eaves, continue application of the membrane up the roof. Membrane may be installed either vertically or horizontally after the first horizontal course.
8. Side laps minimum 3-1/2 inches (89 mm) and end laps minimum 6 inches (152 mm) following lap lines marked on underlayment.
9. Patch penetrations and damage using manufacturer's recommended methods.

3.03 CLEANING AND PROTECTION

- A. Protection: Protect from damage during construction operations and installation of roofing materials. Promptly repair any damaged or deteriorated surfaces.
- B. Repair minor damage to eliminate all evidence of repair. Remove and replace work which cannot be satisfactorily repaired in the opinion of the Architect.
- C. Provide temporary protection to ensure work being without damage or deterioration at time of final acceptance. Remove protective film and reclean as necessary immediately before final acceptance.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 07 40 00

METAL ROOF

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

A. Work Included: Perform all work required to complete the work of the Section, as indicated. Such work includes, but is not limited to, the following:

1. Nail strip standing seam roof system, 1 1/2 inch seam height.

1.02 RELATED WORK

- A. Ice and Water Shield
- B. Flashing and Sheet Metal.
- C. Soffit Panels

1.03 REFERENCES

A. ASTM International (ASTM):

1. ASTM E72 - Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
2. ASTM E1592 - Standard Test Method for Structural Performance of Sheet Metal Roof and Siding Systems by Uniform Static Air Pressure Difference.
3. ASTM E1646 - Standard Test Method for Water Penetration of Exterior Metal Roof Panel Systems by Uniform Static Air Pressure Difference.
4. ASTM E1680 - Standard Test Method for Rate of Air Leakage through Exterior Metal Roof Panel Systems.

B. UL, LLC (UL).

1. UL 580 - Standard for Tests for Uplift Resistance of Roof Assemblies.
2. UL 2218 - Standard for Impact Resistance of Prepared Roof Covering Materials.

1.04 SUBMITTALS

A. Product Data:

1. Manufacturer's data sheets on each product to be used.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Verification Samples: Two representative units of each type, size, pattern and color.

D. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

METAL ROOF

07 40 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.
- B. Installer Qualifications: Company specializing in performing Work of this section with minimum two years documented experience with projects of similar scope and complexity.
- C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Store and handle in strict compliance with manufacturer's written instructions and recommendations.
- B. Protect from damage due to weather, excessive temperature, and construction operations.

1.07 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit assembly of metal panels to be performed in accordance with manufacturers' written instructions and warranty requirements.

1.08 WARRANTY

- A. Warranty: Provide manufacturer's standard limited warranty against defects in materials and workmanship

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Everlast Metals, which is located at: 10 Enterprise Ct.; Lebanon, PA 17042; Toll Free Tel: 800-418-5057; Tel: 717-389-0234; Fax: 717-450-4348; Email: request_info@fetchko@everlastmetals.com; Web: <https://www.everlastmetals.com>
- B. Other equivalent products and manufacturers as approved by Design Professional

2.02 METAL ROOF PANELS

- A. Vertical-Rib, Snap-Joint, Standing-Seam Metal Roof Panels.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Everlast Metals; SSL-175 or equal.
 - 2. Metallic-Coated Steel Sheet: Zinc-coated (galvanized) steel sheet complying with ASTM A653/A653M, G90 coating designation.
 - a. Nominal Thickness: 26 gauge
 - b. Exterior Finish: Two-coat fluoropolymer; Color: As selected by Architect from manufacturer's standard range.
 - c. Compliance:

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- (i) Uplift Resistance: UL 580 Class 90.
 - (ii) Structural Performance: ASTM E330 and E1592.
 - (iii) Air Infiltration: ASTM E283.
 - (iv) Water Penetration: ASTM E331 and E1646.
- d. Profile: Flat
 - e. Panel Width: 18 inches
 - f. Minimum Slope: 2:12.
3. Clips: One-piece fixed to accommodate thermal movement.
- a. Material: Zinc-coated (galvanized).

2.02 UNDERLAYMENT MATERIALS

- A. Self-Adhering, High-Temperature Underlayment: Provide self-adhering, cold-applied, sheet underlayment, consisting of slip-resistant, polyethylene-film top surface laminated to a layer of butyl or SBS-modified asphalt adhesive, with release-paper backing. Provide primer when recommended by underlayment manufacturer.

2.03 MISCELLANEOUS MATERIALS

- A. Panel Accessories: Provide components required for a complete, weathertight panel system including trim, copings, fasciae, mullions, sills, corner units, clips, flashings, sealants, gaskets, fillers, closure strips, and similar items. Match material and finish of metal panels unless otherwise indicated.
- B. Flashing and Trim: Provide flashing and trim formed from same material as metal panels as required to seal against weather and to provide finished appearance. Locations include, but are not limited to, eaves, rakes, corners, bases, framed openings, ridges, fasciae, and fillers. Finish flashing and trim with same finish system as adjacent metal panels.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly constructed and prepared.
- B. If substrate preparation is the responsibility of another installer, notify Architect in writing of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation. Verify existing construction is suitable to receive metal panels.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions, approved submittals and in proper relationship with adjacent construction.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1. Install panels in a sequential pattern as recommended by manufacturer.
2. Strippable plastic film may remain in place during installation, after removal from areas of concealed or joined pieces. Remove film to avoid embrittlement from exposure.
3. Do not cut with power saws or abrasive blades.

3.04 CLEANING AND PROTECTION

- A. Remove temporary protective coverings and strippable films, if any, as metal panels are installed, unless otherwise indicated in manufacturer's written installation instructions. On completion of metal panel installation, clean finished surfaces as recommended by metal panel manufacturer. Maintain in a clean condition during construction.
- A. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

METAL ROOF

07 40 00

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 08 00 00
OPENINGS

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 08 11 10

STEEL DOORS AND FRAMES

PART 1 – GENERAL

1.01 DESCRIPTION OF WORK

- A. Steel doors and steel frames.

1.02 REFERENCES

- A. ANSI A115.1G - Installation Guide for Doors and Hardware
- B. ANSI A250.8 - SDI-100 Recommended Specifications for Standard Steel Doors and Frames
- C. ANSI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Manufacturer's data sheets on each product to be used, including:
 - 1. Preparation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Installation methods.
- C. Shop Drawings: Include schedule identifying each unit, with door marks or numbers referencing drawings. Show layout, profiles, product components and anchorages.
 - 1. Indicate frame configuration, anchor types and spacing, location of cutouts for hardware, reinforcement, to ensure doors and frames are properly prepared and coordinated to receive hardware.
 - 2. Indicate door elevations, internal reinforcement, closure method, and cutouts for glass lights and louvers.

1.04 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Minimum five years documented experience manufacturing products specified this Section.
- B. Installer Qualifications: Minimum five years documented experience installing products specified this Section.
- C. All products shall conform to the requirements of ANSI A250.8 Recommended Specifications for Standard Steel Doors and Frames".

1.05 DELIVERY, STORAGE, AND HANDLING

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

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Store doors vertically in a dry area, under a proper vented cover. Place on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.
- C. Store frames in an upright position with heads uppermost under cover. Place on 4 inch (102 mm) high wood sills to prevent rust and damage. Store assembled frames five units maximum in a stack with 2 inch (51 mm) space between frames to promote air circulation.
- D. Do not use non-vented plastic or canvas shelters to prevent rust or damage.
- E. Should wrappers become wet, remove immediately.

1.06 SEQUENCING

- A. Ensure that locating templates and other information required for installation of products of this section are furnished to affected trades in time to prevent interruption of construction progress.
- B. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.07 COORDINATION

- A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.
- B. Coordinate Work with frame opening construction, door and hardware installation.
- C. Sequence installation to accommodate required door hardware.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Galaxy Metal Products, which is located at: 2960 Woodbridge Ave.; Edison, NJ 08837; Toll Free Tel: 800-294-8199; Email:[request info ceceri@galaxymetalproducts.com](mailto:request_info_ceceri@galaxymetalproducts.com)]; Web:<http://galaxymetalproducts.com> | <http://www.buysuperstud.com>
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
- C. Provide all steel doors and frames from a single manufacturer.

2.02 DOORS

- A. Exterior Doors: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60:
 - 1. Thickness: 16 gage (1.3 mm).
 - 2. Include galvanized components and internal reinforcements with galvanized doors.
 - 3. Close tops of exterior swing-out doors to eliminate moisture penetration. Galvanized steel top caps are permitted.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Interior Doors: Cold-rolled steel, ASTM A 1008/A 1008M:
 - 1. Thickness: 16 gage (1.3 mm).
 - 2. Include galvanized components and internal reinforcements.
 - 3. Prime Finish Doors: Clean, phosphatize and factory prime painted doors indicated on Door Schedule as HM.

- C. Hardware Reinforcements:
 - 1. Hinge reinforcements for full mortise hinges: minimum 7 gage (4.76 mm).
 - 2. Lock reinforcements: minimum 16 gage (1.3 mm).
 - 3. Closer reinforcements: minimum 14 gage (1.7 mm) steel, 20-inch (508 mm) long.
 - 4. Galvanized doors: include galvanized hardware reinforcements.
 - 5. Projection welded hinge and lock reinforcements to the edge of the door.
 - 6. Provided adequate reinforcements for other hardware as required.

2.03 DOOR FRAMES

- A. General: Construct exterior/interior metal door frames to the following designs and gages:
 - 1. Exterior Frames: Zinc-Iron Alloy-Coated galvanized steel, ASTM A 653, Class A60;. Thickness: 16 gage (1.3 mm).
 - 2. Interior KD Drywall Frames (Pressure Fit): cold rolled steel, ASTM A 1008/A 1008M.; Thickness: 16 gage (1.3 mm).

- B. Steel Frames for Drywall:
 - 1. Profile:: 2 inches (51 mm) face dimension, 1/2 inch (13 mm) backbend with 5/16 inch (8 mm) return, 5/8 inch (16 mm) high stop, types and throat dimensions indicated.

2.04 ACCESSORIES

- A. Anchors: Manufacturer's standard framing anchors, specified in manufacturer's printed installation instructions for project conditions.

2.05 FABRICATION

- A. Steel Frames:
 - 1. Three-piece knock-down frames: Head and jamb intersecting corners die-cut, mitered at 45 degrees, with locking tabs for rigid connection when assembled.
 - 2. Factory-welded frames: Head and jamb intersecting corners mitered at 45 degrees, with back welded joints ground smooth.
 - a. Continuous face weld the joint between the head and jamb faces along their length either internally or externally. Grind, prime paint, and finish smooth face joints with no visible face seams.
 - b. Externally weld, grind, prime paint, and finish smooth face joints at meeting mullions or between mullions and other frame members per a current copy of ANSI A250.8.
 - c. Provide temporary steel spreaders (welded to the jambs at each rabbet of door openings) on welded frames during shipment. Remove temporary steel

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

spreaders prior to installation of the frame.

2.06 FINISHES

- A. Factory Prime Finish: Meet requirements of ANSI A250.10.

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Do not begin installation until substrates have been properly prepared.
- B. Verify that substrate conditions are acceptable for installation of doors and frames in accordance with manufacturer's installation instructions and technical bulletins.
- C. Verify door frame openings are installed plumb, true, and level.
- D. Select fasteners of adequate type, number, and quality to perform intended functions.
- E. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

- A. Clean surfaces thoroughly prior to installation.
- B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

3.03 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install frames plumb, level, rigid and in true alignment in accordance with ANSI A250.11, "Recommended Erection Instructions for Steel Frames" and ANSI A115.1G, "Installation Guide for Doors and Hardware".
- C. All frames other than slip-on types shall be fastened to the adjacent structure to retain their position and stability. Drywall slip-on frames shall be installed in prepared wall openings, and shall use pressure type and sill anchors to maintain stability.
- D. Install doors to maintain alignment with frames to achieve maximum operational effectiveness and appearance. Adjust to maintain perimeter clearances as required. Shim as needed to assure the proper clearances are achieved.

3.04 CLEARANCES

- A. Clearance between the door and frame head and jambs for both single swing and pairs of doors shall be 1/8 inch (3.2 mm).
- B. Clearance between the meeting edges of pairs of doors shall be 3/16 inch plus or minus 1/16 inch (5 mm plus or minus 1.6 mm). For fire rated applications, the clearance between

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

the meeting edges of pairs of doors shall be 1/8 inch plus or minus 1/16 inch (3.2 mm plus or minus 1.6 mm).

- C. Bottom clearance shall be 3/4 inch (19 mm) (Standard).
- D. The clearance between the face of the door and door stop shall be 1/16 inch to 1/8 inch (1.6 mm plus or minus 3.2 mm).
- E. All clearances shall be, unless otherwise specified, subject to a tolerance of plus or minus 1/32 inch (.4 mm).

3.05 ADJUSTING AND CLEANING

- A. Adjust doors for free swing without binding.
- B. Adjust hinge sets, locksets, and other hardware. Lubricate using a suitable lubricant compatible with door and frame coatings.
- C. Remove temporary coverings and protection of adjacent work areas. Repair or replace damaged installed products. Clean installed products in accordance with manufacturer's instructions before owner's acceptance.
- D. Remove from project site and legally dispose of construction debris associated with this work.

3.06 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 08 71 00

DOOR HARDWARE

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Door hardware for doors specified in "Hardware Sets" and required by actual conditions. Include screws, bolts, expansion shields, and other devices for proper application of hardware.
 - 1. Mechanical door hardware
 - 2. Cylinders for door hardware.
 - 3. Wireless electronic door hardware.

1.02 RELATED WORK

- A. Hollow Metal Doors and Frames
- B. Telecom

1.03 REFERENCES

- A. American National Standards Institute/Builders Hardware Manufacturers Association (ANSI):
 - 1. ANSI/BHMA A156.1 Butts & Hinges (2006).
 - 2. ANSI/BHMA A156.2 Bored & Preassembled Locks & Latches (2011).
 - 3. ANSI/BHMA A156.4 Door Controls - Closers (2008).
 - 4. ANSI/BHMA A156.5 Cylinders and Input Devices for Locks (2010).
 - 5. ANSI/BHMA A156.6 Architectural Door Trim (2010).
 - 6. ANSI/BHMA A156.13 Mortise Locks & Latches (2005).
 - 7. ANSI/BHMA A156.18 Materials & Finishes (2006).
 - 8. ANSI/BHMA A156.21 Thresholds (2009).
 - 9. ANSI/BHMA A156.115 Hardware Preparation in Steel Doors and Steel Frames (2006).
- B. International Code Council/American National Standards Institute (ICC/ANSI)/ADA:
 - 1. ICC/ANSI A117.1 Standards for Accessible and Usable Buildings and Facilities 2009.
 - 2. Americans with Disabilities Act Accessibility Guidelines (ADAAG).

1.04 COORDINATION

- A. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- B. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

DOOR HARDWARE

08 71 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.05 PREINSTALLATION MEETINGS

- A. Keying Conference: Conduct conference at Project site with Owner Rep.

1.06 SUBMITTALS

- A. Shop Drawings: Hardware schedule shall be organized in vertical format illustrated in DHI Publications Sequence and Formatting for the Hardware Schedule. Include abbreviations and symbols page according to DHI Publications Abbreviations and Symbols. Complete nomenclature of items required for each door opening as indicated
 - 1. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of hardware.
- B. Submit manufacturer's catalog sheet on design, grade and function of items listed in hardware schedule. Identify specific hardware item per sheet, provide index, and cover sheet.
- C. Closeout Submittals: Submit to Owner in a three ring binder or CD if requested.
 - 1. Warranties.
 - 2. Maintenance and operating manual including list of maintenance tools.

1.07 QUALITY ASSURANCE

- A. Door hardware shall conform to ICC/ANSI A117.1. Handles, Pulls, Latches, Locks and operating devices: Shape that is easy to grasp with one hand and does not require tight grasping, tight pinching, or twisting of the wrist.

1.08 DELIVERY, STORAGE AND HANDLING

- A. Provide a clean, dry and secure room for hardware delivered to Project but not yet installed.
- B. Furnish hardware with each unit marked and numbered in accordance with approved finish hardware schedule. Include door and item number for each type of hardware.
- C. Pack each item complete with necessary parts and fasteners in manufacturer's original packaging.

1.09 PROJECT CONDITIONS

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

1.10 WARRANTY

- A. General Warranty: Owner may have under provisions of the Contract Documents and shall be in addition to and run concurrent with other warranties made by Contractor under requirements of the Contract documents.
- B. Products judged defective during warranty period shall be replaced or repaired in accordance with manufacturer's warranty at no cost to Owner. There is no warranty against defects due to improper installation, abuse and failure to exercise normal maintenance.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Hager / Schlage/ Rockwood/ Yale
- B. Other equivalent products and manufacturers as approved by Design Professional

2.02 PERFORMANCE REQUIREMENTS

- A. Wireless Electrified Door Hardware: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Accessibility Requirements: comply with ADA Standards for Accessible Design.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of the wrist and that operate with a force of not more than 5 lbf.
 - 2. Bevel raised thresholds with a slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
 - 3. Adjust door closer sweep periods so that, from an open position of 90 degrees, the door will take at least 5 seconds to move to a position of 12 degrees from the latch.

2.03 SCHEDULED DOOR HARDWARE

- A. Provide products for each door, hardware sets as noted on the drawings

2.04 LOCKS AND LATCHES

- A. Lever handles, ADA compliant
- B. Schlage LE wireless mortise locks or approved equal
- C. Provide additional trim, plate, turn knobs, cores and other accessories as required for operation
- D. Material: Stainless steel, satin finish; similar to ANSI/BHMA 630 (US 32D), FSB 6204

2.05 HINGES

- A. Hinges shall be of one manufacturer as listed for continuity of design and consideration of warranty and shall be certified and listed by the following:
 - 1. Butts and Hinges: ANSI/BHMA A156.1
- B. Butt Hinges:
 - 1. Hinge weight and size unless otherwise indicated in hardware sets:
 - a. Doors up to 36 inches (914 mm) wide and up to 1-3/4 inches (44.5 mm) thick provide hinges with a minimum thickness of .134 inch (3.4 mm) and a minimum of 4-1/2 inches (114 mm) in height.
 - 2. Base material unless otherwise indicated in hardware sets:
 - a. Exterior Doors: Steel material

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.06 CLOSERS

- A. Shall be product of one manufacturer.
- B. Mounting:
 - 1. In swing doors shall have surface regular arm mount closers except where noted on hardware schedule.

2.07 STOPS AND HOLDERS

- A. Wall Stops: Provide door stops wherever necessary to prevent door or hardware from striking an adjacent partition or obstruction. Provide wall stops when possible. Door stops and holders mounted in concrete floor or masonry walls shall have stainless steel machine screws and lead expansion shields. Manufacturer shall meet requirements for Auxiliary Hardware: ANSI/BHMA A156.16.

2.08 THRESHOLDS

- A. Thresholds: Provide thresholds, including but not limited to ADA compliant aluminum (mill finish) saddle thresholds. Manufacturer shall meet performance requirements of ANSI/BHMA A156.21.
- B. Set thresholds for exterior doors in full bed of sealant

2.09 DOOR SWEEPS

- A. Apply to bottom of door, forming seal with threshold when door is closed.

2.10 ASTRAGAL

- A. Astragal: Provide split astragal with concealed fasteners at double doors.

2.11 FLUSH BOLT

- A. Flush Bolts: Provide Manual flush bolt for metal doors (pair). Finish US26D.

2.12 LOCK CYLINDERS

- A. Provide Primus Everest key and cores
- B. Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as indicated in keying schedule.

2.13 SIGNAGE

- A. Shall be of one manufacturer as listed for continuity of design and consideration of warranty. Manufacturer shall meet requirements for: Signage: MAAB.
- B. Materials and Design: Provide metal (weather, abrasion, dent and rust resistant). Size of sign to be 6 inches by 8 inches (152 mm by 203 mm) fastened with screws. Color: Black with Silver.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Install hardware per manufacturer's instructions
- B. Do not install surface mounted items until finishes have been completed on substrates involved. Set unit level, plumb and true to line location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

3.03 FIELD QUALITY CONTROL

- A. Material supplier to schedule final walk through to inspect hardware installation ten business days before final acceptance of Owner. Material supplier shall provide a written report detailing discrepancies of each opening to General Contractor within seven calendar days of walk through.

3.04 ADJUSTMENT, CLEANING AND DEMONSTRATING

- A. Adjustment: Adjust and check each opening to ensure proper operation of each item of finish hardware. Replace items that cannot be adjusted to operate freely and smoothly or as intended for application at no cost to Owner.
- B. Cleaning: Clean adjacent surfaces soiled by hardware installation. Clean finished hardware per manufacturer's instructions after final adjustments has been made. Replace items that cannot be cleaned to manufacturer's level of finish quality at no cost to Owner.

3.05 PROTECTION

- A. Leave manufacturer's protective film intact and provide proper protection for all other finish hardware items that do not have protective material from the manufacture until Owner accepts Project as complete.

END OF SECTION

DOOR HARDWARE

08 71 00

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 09 00 00
FINISHES

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 09 99 00

PAINTING

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Commercial painting, including surface preparation, for projects in the United States.
 - 1. Interior commercial painting.
 - 2. Exterior commercial painting.

1.02 RELATED WORK

- A. Division 8 - Metal Doors and Frames
- B. Division 9 - Drywall - (Walls, Ceilings, Gypsum Board and similar items).

1.03 REFERENCES

- A. Occupational Safety and Health Act (OSHA) - Safety Standards.
- B. American National Standards Institute (ANSI) - Performance Standards.
- C. Paint Decorating Contractors of America (PDCA) - Application Standard.
- D. National Paint and Coatings Association (NPCA) - Gloss Standard.
- E. American Society for Testing Materials (ASTM) - Testing Methods.

1.05 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Product Data: Provide a complete list of all products to be used, with the following information for each:
 - 1. Manufacturer's name, product name and/or catalog number, and general product category.
 - 2. Cross-reference to specified paint system(s) that the product is to be used in; include description of each system.
- C. Samples: Submit three paper samples, 5 inches by 7 inches (127mm x 178mm) in size, illustrating selected colors for each color and system selected with specified coats cascaded.
- D. Maintenance Data: Submit data on cleaning, touch-up, and repair of painted and coated surfaces.

1.06 QUALITY ASSURANCE

- A. Manufacturer Qualifications: All primary products specified in this section will be supplied by a single manufacturer with a minimum of ten years experience.

PAINTING

09 91 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Installer Qualifications: All products listed in this section are to be applied by a Painting Contractor with a minimum of five years demonstrated experience in surface preparation and field application of the same type and scope as specified.

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.
- C. Disposal:
 - 1. Never pour leftover coating down any sink or drain. Use up material on the job or seal can and store safely for future use.
 - 2. Do not incinerate closed containers.
 - 3. For specific disposal or recycle guidelines, contact the local waste management agency or district. Recycle whenever possible.

1.08 PROJECT CONDITIONS

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

1.09 WARRANTY

- A. Inspection of all surfaces to be coated must be done by the manufacturer's representative to insure proper preparation prior to application. All thinners, fillers, primers and finish coatings shall be from the same manufacturer to support a product warranty. Products other than those submitted shall be accompanied by a letter stating its fitness for use and compatibility.
- B. At project closeout, provide to the Owner or owner's representative an executed copy of the Manufacturer's standard form outlining the terms and conditions of and any exclusions to their Limited Warranty against Manufacturing Defect.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Benjamin Moore & Co. (United States), which is located at: 101 Paragon Dr; Montvale, NJ 07645; Toll Free Tel: 866-708-9181; Email:[request info \(info@benjaminmoore.com\)](mailto:info@benjaminmoore.com); Web:<https://www.benjaminmoore.com> | <https://www.benjaminmoore.com/en-ca>
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

2.02 MATERIALS - GENERAL

- A. Compatibility: Provide 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.

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.03 MIXING AND TINTING

- A. Except where specifically noted in this section, all paint shall be ready-mixed and pre-tinted. Agitate all paint prior to and during application to ensure uniform color, gloss, and consistency.
- B. Thinner addition shall not exceed manufacturer's printed recommendations. Do not use kerosene or other organic solvents to thin water-based paints.
- C. Non-Ferrous- (Galvanized and Aluminum):
 - 1. Latex Systems:
 - a. Semi-Gloss Finish:
 - 1) First Coat: Corotech Acrylic Metal Primer
 - 2) Second Coat: Corotech Acrylic DTM Enamel Semi-Gloss
 - 3) Third Coat: Corotech Acrylic DTM Enamel Semi-Gloss
- D. METAL - (Structural Steel Columns, Joists, Trusses, Beams, Miscellaneous and Ornamental Iron, Structural Iron, Ferrous Metal).
 - 1. Latex Systems:
 - a. Semi-Gloss Finish:
 - 1) First Coat: Corotech Acrylic Metal Primer
 - 2) Second Coat: Corotech Acrylic DTM Enamel Semi-Gloss.
 - 3) Third Coat: Corotech Acrylic DTM Enamel Semi-Gloss V331
- E. DRYWALL - (Walls, Ceilings, Gypsum Board)
 - 1. Latex Systems:
 - a. Semi-Gloss Finish:
 - 1) First Coat: Benjamin Moore Ultra Spec 500 Interior Latex Primer
 - 2) Second Coat: Benjamin Moore Ultra Spec 500 Interior Latex Semi-Gloss
 - 3) Third Coat: Benjamin Moore Ultra Spec 500 Interior Latex Semi-Gloss

PART 3 - EXECUTION

3.01 EXAMINATION

- A. The Contractor shall review the product manufacturer's special instructions for surface preparation, application, temperature, re-coat times, and product limitations
- B. The Contractor shall review product health and safety precautions listed by the manufacturer.
- C. The Contractor shall be responsible for enforcing on site health and safety requirements associated with the Work.
- D. Do not begin installation until substrates have been properly prepared.
- E. Ensure that surfaces to receive paint are dry immediately prior to application.
- F. Ensure that moisture-retaining substrates to receive paint have moisture content within tolerances allowed by coating manufacturer. Where exceeding the following values,

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

promptly notify Architect and obtain direction before beginning work.

1. Plaster and Gypsum: 15 percent.
- C. Examine surfaces to receive coatings for surface imperfections and contaminants that could impair performance or appearance of coatings, including but not limited to, loose primer, rust, scale, oil, grease, mildew, algae, or fungus, stains or marks, cracks, indentations, or abrasions.
- D. Correct conditions that could impair performance or appearance of coatings in accordance with specified surface preparation procedures before proceeding with coating application.

3.02 PREPARATION - GENERAL

- A. Clean surfaces thoroughly prior to coating application.
- B. Do not start work until surfaces to be finished are in proper condition to produce finished surfaces of uniform, satisfactory appearance.
- C. Stains and Marks: Remove completely, if possible, using materials and methods recommended by coating manufacturer; cover stains and marks which cannot be completely removed with isolating primer or sealer recommended by coating manufacturer to prevent bleed-through.
- D. Remove Mildew, Algae, and Fungus using materials and methods recommended by coating manufacturer.
- E. Remove dust and loose particulate matter from surfaces to receive coatings immediately prior to coating application.
- F. Remove or protect adjacent hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items not indicated to receive coatings.
- G. Move or protect equipment and fixtures adjacent to surfaces indicated to receive coatings to allow application of coatings.
- H. Protect adjacent surfaces not indicated to receive coatings.
- I. Prepare surfaces in accordance with manufacturer's instructions for specified coatings and indicated materials, using only methods and materials recommended by coating manufacturer.

3.03 SURFACE PREPARATION

- A. Gypsum Board: Repair cracks, holes and other surface defects with joint compound to produce surface flush with adjacent surfaces.
- B. Metals - Shop-Primed: Remove loose primer and rust, if present, by scraping and sanding, feathering edges of cleaned areas to produce uniform flat surface; solvent-clean surfaces and spot-prime bare metal with specified primer, feathering edges to produce uniform flat surface.

3.04 APPLICATION - GENERAL

- A. Application of primers, paints, stains or coatings, by the Contractor, will serve as acceptance that surfaces were properly prepared in accordance with the manufacturer's

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

recommendation.

- B. Apply each coat to uniform coating thickness in accordance with manufacturer's instructions, not exceeding manufacturer's specified maximum spread rate for indicated surface; thins, brush marks, roller marks, orange-peel, or other application imperfections are not permitted.
- C. Allow manufacturer's specified drying time, and ensure correct coating adhesion, for each coat before applying next coat.
- D. Inspect each coat before applying next coat; touch-up surface imperfections with coating material, feathering, and sanding if required; touch-up areas to achieve flat, uniform surface without surface defects visible from 5 feet (1.5 m).
- E. Remove dust and other foreign materials from substrate immediately prior to applying each coat.
- F. Where paint application abuts other materials or other coating color, terminate coating with a clean sharp termination line without coating overlap.
- G. Re-prepare and re-coat unsatisfactory finishes; refinish entire area to corners or other natural terminations.

3.05 CLEANING

- A. Clean excess coating materials, and coating materials deposited on surfaces not indicated to receive coatings, as construction activities of this section progress; do not allow to dry.
- B. Re-install hardware, electrical equipment plates, mechanical grilles and louvers, lighting fixture trim, and other items that have been removed to protect from contact with coatings.
- C. Reconnect equipment adjacent to surfaces indicated to receive coatings.
- D. Relocate to original position equipment and fixtures that have been moved to allow application of coatings.
- E. Remove protective materials.

3.06 PROTECTION AND REPAIR

- A. Protect completed coating applications from damage by subsequent construction activities until completion of painting project.
- B. Touch-up coatings damaged by subsequent construction activities.

END OF SECTION

PAINTING

09 91 00

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 09 97 23

CONCRETE SEALERS

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. This Section specifies an applied sealer for horizontal cast-in-place concrete surfaces.

1.02 RELATED WORK

- A. Section 033000 - Cast-In-Place Concrete.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's product data and installation instructions.
- B. Mock-Up: Prepare a test area minimum 2 by 2 feet in size to verify suitability of the sealer and final appearance.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Minimum 10 years experience producing concrete coatings.
- B. Installer: Licensed installers experienced and trained in the use of specified products.
- C. Suitability of Substrate: Concrete surface must be clean and dry with all stains, oil, grease, dust and dirt removed prior to application. A thorough pressure washing is highly recommended.
- D. Regulatory Requirements: Comply with requirements of authorities having jurisdiction and applicable codes at the location of the project.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Deliver materials and products in unopened factory labeled packages. Protect from damage.
- B. Store in a safe place, out of direct sunlight. Keep containers tightly sealed. Do not allow product to freeze. Use within manufacturer's recommended shelf life, approximately 12 months.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Basis of Design: Concrete Sealer: High-performance, non-yellowing, clear acrylic-based sealer by Concrete Coatings Inc., 1105 North 1600 West, Layton, UT 84041, 800-443-2871, www.concretecoatingsinc.com.
- B. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.

CONCRETE SEALERS

09 97 23

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.02 MATERIALS

- A. Sealer with Matte Finish: CCI GemKote 400-M, with 400 g/L VOC.
- B. Slip resistant additive for acrylic sealers

2.03 PERFORMANCE

- A. Concrete sealers shall meet or exceed the following:
 - 1. Coverage: As recommended by manufacturer.
 - 2. Moisture Retention, Test ASTM C 309: 0.21 kg/m² at 200 ft² per gallon and 0.32 kg/m² at 300 ft² per gallon.
 - 3. Gasoline Resistance: Slight dulling after 15-minute exposure (ponding).
 - 4. Tg: 50°C.
 - 5. Tukon Hardness: 30 minutes at 180°F, 9.3; 30 minutes at 300°F, 13.7.
 - 6. Pencil Hardness: 30 minutes at 180°F, F; 30 minutes at 300°F, H.
 - 7. Spray Conditions, Viscosity: 19 seconds, No. 2 Zhan cup.
 - 8. Abrasion Resistance: 160 mg lost, CS-17 wheel, 1000 g load, 1000 cycles

PART 3 - EXECUTION

3.01 PREPARATION

- A. Inspection: Prior to start of application, inspect existing conditions to ensure surfaces are suitable for installation including the following:
 - 1. Concrete has cured for a minimum of 28 days prior to application of sealer.
 - 2. Surface is completely free of sealers, oils, dirt, paint, alkali, penetrating sealers and foreign materials that would prevent the sealer from penetrating the concrete surface.
 - 3. Concrete has been swept clean.
 - 4. Test area has been approved.

3.02 APPLICATION

- A. Concrete Sealer: Strictly comply with manufacturer's installation recommendations including the following.
 - 1. Apply after stain has dried at rate recommended by manufacturer.
 - 2. Clean surface as recommended by manufacturer.
 - 3. All concrete flatwork designated as being sealed in the plans and specifications shall be sealed with 2-3 even coats of sealer, at the rate of approximately 150 to 200 square feet per gallon.

3.03 CLEANING AND PROTECTION

- A. Protection: Do not cover, but protect floor area from paint and other contaminants that could inhibit the sealer.

END OF SECTION

CONCRETE SEALERS

09 97 23



DIVISION 10 00 00
SPECIALTIES

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 10 28 00

WASHROOM ACCESSORIES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Washroom accessories as scheduled in this Section and as indicated on the Drawings.

1.02 RELATED WORK

- A. Toilet Compartments, coordination with accessories.
- B. Baby Changing Stations, for baby changing stations.

1.03 SUBMITTALS

- A. Product Data: Submit manufacturer's data sheets for each product specified, including the following:
 - 1. Installation instructions and recommendations.
 - 2. Storage and handling requirements and recommendations.
 - 3. Cleaning and maintenance instructions.
 - 4. Replacement parts information.
- B. Schedule: Submit a toilet accessory schedule, indicating the type and quantity to be installed in each washroom.

1.04 QUALITY ASSURANCE

- A. Manufacturer: Provide products manufactured by a company with a minimum of 10 years successful experience manufacturing similar products.
- B. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.
- C. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

1.06 WARRANTY

WASHROOM ACCESSORIES

102800

TOWN OF READING – BIRCH MEADOW PARK | PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- A. Manufacturer's Warranty for Washroom Accessories: Manufacturer's standard 1 year warranty for materials and workmanship.
- B. Manufacturer's Warranty for Electric Hand Dryers: Manufacturer's standard 5 year warranty on parts, except 3 year warranty on motor brushes from date of purchase.

PART 2 - PRODUCTS

2.01 MANUFACTURER

- A. Basis of Design Products: Based on the quality and performance requirements of the project, specifications are based solely on the products of Bobrick Washroom Equipment, Inc.. www.bobrick.com.
- B. Substitutions: The Architect will consider products of comparable manufacturers as a substitution, pending the contractor's submission of adequate documentation of the substitution in accordance with procedures in Division 1 of the Project Manual.

2.02 TOILET ACCESSORY SCHEDULE

- C. Washroom, Standard Duty:
 - 1. TA-1: B-7128 Quiet Dry Series Trim Dry ADA Surface-Mounted Hand Dry
 - 2. TA-2: KB300-00 Koala Kare Products Horizontal Surface-Mounted Baby Changing Station. Color: White Granite 05
 - 3. TA-3: B-5806.99x42 Concealed Mounting Grab Bar – 1-1/4 inch diameter.
 - 4. TA-4: B-212 Clothes Hook with Bumper
 - 5. TA-5: B-270 Contura Series Surface Mounted Sanitary Napkin Disposal
 - 6. TA-6: Frameless mirror

PART 3 - EXECUTION

3.01 INSTALLATION

- A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
 - 1. Verify location does not interfere with door swings or use of fixtures.
 - 2. Comply with manufacturer's recommendations for backing and proper support.
 - 3. Use fasteners and anchors suitable for substrate and project conditions
 - 4. Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
 - 5. Conceal evidence of drilling, cutting, and fitting to room finish.
 - 6. Test for proper operation.

3.02 CLEANING AND PROTECTION

- A. Clean exposed surfaces of compartments, hardware, and fittings using methods acceptable to the manufacturer.
- B. Touch-up, repair or replace damaged products until Substantial Completion.

END OF SECTION

WASHROOM ACCESSORIES



DIVISION 22 00 00

PLUMBING

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 22 00 00
PLUMBING TABLE OF CONTENTS

PART 1 – GENERAL 1

1.01 GENERAL REQUIREMENTS AND REFERENCES 1

1.02 DEFINITIONS 1

1.03 SCOPE 2

1.04 RELATED WORK UNDER OTHER SECTIONS..... 3

1.05 REGULATORY REQUIREMENTS..... 3

1.06 SUBMITTALS 4

1.07 SURVEYS AND MEASUREMENTS 7

1.08 COORDINATION 7

1.09 MECHANICAL AND ELECTRICAL COORDINATION 8

1.10 COORDINATION DRAWINGS 9

1.11 INSTALLATION REQUIREMENTS 9

1.12 TYPICAL DETAILS 10

1.13 SLEEVES, INSERTS 10

1.14 FIRESTOPPING, SMOKEPROOFING & WATERPROOFING 10

1.15 CORING, DRILLING..... 10

1.16 ACCESSIBILITY..... 10

1.17 SUPPLEMENTARY SUPPORTING STEEL 10

1.18 TOOLS AND EQUIPMENT..... 11

1.19 PORTABLE AND DETACHABLE PARTS..... 11

1.20 RECORD DRAWINGS, PROJECT CLOSEOUT 11

1.21 GUARANTEE/WARRANTY..... 11

1.22 OPERATING, INSTRUCTION AND MAINTENANCE MANUALS 12

1.23 QUALITY ASSURANCE..... 13

1.24 DELIVERY, STORAGE AND HANDLING 14

PART 2 - PRODUCTS 14

2.01 PIPE MATERIALS 14

2.02 COPPER PIPE (FOR CW & HW SYSTEMS) 15

2.03 SANITARY WASTE AND VENT (CAST IRON)..... 16

2.04 PRESSURE, FLOW AND TEMPERATURE CONTROL DEVICES..... 16

2.05 INSULATION..... 17

2.06 PIPE SUPPORTS 18

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

| | | |
|--------------------------|--|----|
| 2.07 | SLEEVES, INSERTS, FIRE STOPPING AND ESCUTCHEONS | 19 |
| 2.08 | TRAPS AND STRAINERS | 20 |
| 2.09 | THERMOMETERS AND PRESSURE GAUGES | 21 |
| 2.10 | WALL HYDRANTS AND HOSE BIBBS | 22 |
| 2.11 | WATER HAMMER ARRESTERS..... | 22 |
| 2.12 | PLUMBING FIXTURES AND TRIM..... | 22 |
| 2.13 | EQUIPMENT – GENERAL | 23 |
| 2.14 | WATER HEATERS | 24 |
| PART 3 - EXECUTION | | 24 |
| 3.01 | COORDINATION | 24 |
| 3.02 | EXPANSION PROVISIONS..... | 24 |
| 3.03 | PIPE IDENTIFICATION | 24 |
| 3.04 | TAGS, VALVES, EQUIPMENT AND INSTRUMENTS..... | 25 |
| 3.05 | FLASHING AND COUNTER FLASHING | 25 |
| 3.06 | JOINTS AND CONNECTIONS..... | 26 |
| 3.07 | INTERIOR WATER SUPPLY SYSTEM..... | 26 |
| 3.08 | INTERIOR SANITARY WASTE AND VENT PIPING | 26 |
| 3.09 | WATER ENTRANCE | 27 |
| 3.10 | EXTERIOR SANITARY SEWER | 28 |
| 3.11 | FIXTURE ROUGHINGS..... | 28 |
| 3.12 | EQUIPMENT ROUGHINGS AND CONNECTIONS..... | 28 |
| 3.13 | INSTALLATION OF SPECIALTY ITEMS..... | 29 |
| 3.14 | INSTALLATION OF FIXTURES..... | 29 |
| 3.15 | CROSS CONNECTION PROTECTION..... | 29 |
| 3.16 | CLEANING | 30 |
| 3.17 | DISINFECTION OF WATER SYSTEMS - INTERIOR AND EXTERIOR..... | 31 |
| 3.18 | TESTING AND ADJUSTING – GENERAL | 31 |
| 3.19 | TESTING: PIPING SYSTEMS | 33 |

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 22 00 00

PLUMBING

PART 1 – GENERAL

1.01 GENERAL REQUIREMENTS AND REFERENCES

- A. Include "General Requirements" and applicable parts of Division 1 as part of this section.
- B. Examine all other sections of the Specifications for requirements which affect work under this Section whether or not such work is specifically mentioned in this section. Where paragraphs of this section conflict with similar paragraphs of Division 1, requirements of this section shall prevail.
- C. Coordinate work with that of all other trades affecting, or affected by work of this section. Cooperate with such trades to assure the steady progress of all work under the Contract.
- D. The Plumbing Subcontractor shall be responsible for filing all documents, payment of all fees, and securing of all inspections and approvals necessary for the work of this section.
- E. The Plumbing Subcontractor shall carry in the Bid Price all Utility Company and Municipal back charges for all materials furnished and work performed by them in conjunction with this Contract and pay same to the respective agency upon demand. The Plumbing Subcontractor shall not be entitled to additional compensation after the submittal of his bid price should he fail, for any reason, to obtain the total back charge costs to be incurred by the local utility companies or municipal agencies.

1.02 DEFINITIONS

- A. As used in this section, "provide" means "furnish and install", and "POS" means "Provided Under Other Sections".
- B. As used in the Contract Drawings and Specifications for Plumbing work, certain non-technical words shall be understood to have specific meanings as follows, regardless of indications to the contrary in the General Conditions of other documents governing the Plumbing work.
 - 1. "Furnish" means: Purchase and deliver to the project site complete with every necessary appurtenance and support, all as part of the Plumbing work. Purchasing shall include payment of all sales taxes and other surcharges as may be required to assure that purchased item(s) are free of all liens, claims, or encumbrances.
 - 2. "Install" means: Unload at the delivery point at the site and perform every operation necessary to establish secure mounting and correct operation at the proper location in the project, all as part of the Plumbing work.
 - 3. "Provide" means: "Furnish" and "Install".
 - 4. "New" means: Manufactured within the past two (2) years and never before used.
- C. Except where modified by a specific notation to the contrary, it shall be understood that the indication and/or description of any plumbing item in the Contract Drawings or Specifications for Plumbing work carries with it the instruction to furnish, install and connect

PLUMBING

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

the item as part of the Plumbing work, regardless of whether or not this instruction is explicitly stated.

- D. It shall be understood that the Specifications and Drawings for Plumbing work are complimentary and are to be taken together for a complete interpretation of the Plumbing work except that indications on the Contract Drawings, which refer to an individual element of work, take precedence over the Specifications where they conflict.

1.03 SCOPE

- A. Perform work and provide material and equipment as shown on Contract Drawings and as specified or indicated in this Section of the Specifications. Completely coordinate work of this Section with work of other trades and provide a complete and fully functional installation.

1. Domestic water piping system.
2. Exterior water service piping for domestic water beginning 10'-0" outside exterior wall of the building.
3. Backflow preventers.
4. Domestic water heaters.
5. Interior sanitary waste and vent piping system.
6. Interior sanitary drainage system extended to a point 10'-0" outside the interior face of the foundation wall of the building.
7. Plumbing fixtures and trim.
8. Floor drains.
9. Hose bibbs and wall hydrants.
10. Insulation.
11. Valves.
12. Water hammer arresters.
13. Fittings unions, flanges and couplings.
14. Flashing of floor drains.
15. Hangers, plates and inserts.
16. Cleaning, testing and disinfection of piping systems.
17. All supplementary steel for piping and equipment support.
18. Guarantees.
19. Drilling for installation of inserts.
20. Core drilling.
21. Fire seal off all penetrations in floors and walls to the rating of the barrier.

- B. Drawings and Specifications form complimentary requirements; provide work specified and not shown, and work shown and not specified as though explicitly required by both. Although work is not specifically shown or specified, provide supplementary or miscellaneous items, appurtenances, devices and materials obviously necessary for a sound, secure and complete installation.

- C. Give notices, file plans, obtain permits and licenses, pay fees and back charges, and obtain necessary approvals from Authorities Having Jurisdiction as required to perform work in accordance with all legal requirements and with Specifications, Drawings, Addenda and Change Orders, all of which are part of Contract Documents.

- D. Work to be done under this section is shown on the following Drawings:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

P100 and P101

1.04 RELATED WORK UNDER OTHER SECTIONS

A. The following items are not included in this section and will be performed under other sections.

1. Temporary Facilities.
2. Earthwork: Excavation and backfill.
3. Concrete:
 - a. Equipment foundations.
 - b. Housekeeping pads.
4. Masonry: All openings in masonry walls.
5. Waterproofing, Dampproofing and Caulking.
6. Roofing and Flashing.
7. Painting: All painting except as specified herein.
8. Finish Carpentry and Millwork.
9. Steel Doors and Frames.
10. Finish Hardware.
11. Elevators and Lifts.
12. Fire Protection.
13. Electrical.
14. HVAC.
15. Foundation drains.
16. Site drainage.
17. Furnishing of toilet accessories such as toilet paper holders, mirrors and soap dispensers.
18. Utility structures.

1.05 REGULATORY REQUIREMENTS

- A. Comply with all applicable Federal and State laws, and all Local Codes, By-laws and Ordinances.
- B. Where provisions of the Contract Documents conflict with any Codes, Rules or Regulations, the latter shall govern. Where the Contract requirements are in excess of applicable Codes, Rules or Regulations, the Contract provisions shall govern unless the Architect rules otherwise.
- C. Request inspections from Authorities Having Jurisdiction, obtain all permits and pay for all fees and inspection certificates as applicable and/or required. All permits and certificates shall be turned over to the Owner at the completion of the work. Copies of permits shall be given to the Resident Engineer prior to the start of work.
- D. Unless otherwise specified or indicated, materials and workmanship and equipment performance shall conform with the latest edition of the following standards, Codes, Specifications, Requirements and Regulations:
1. Local and State Building, Plumbing, Mechanical, Electrical, Fire and Health Department Codes.
 2. American Gas Association (AGA).
 3. National Fire Protection Association (NFPA).

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

4. American Insurance Association (AIA), formerly National Board of Fire Underwriters.
 5. Occupational Safety and Health Act (OSHA).
 6. Factory Mutual Association (FM).
 7. Underwriter's Laboratories (UL).
- E. All Plumbing work shall meet or exceed any other State and Local Codes and/or Authorities Having Jurisdiction including all other standards indicated herein.

1.06 SUBMITTALS

- A. This paragraph shall supplement Division 1.
- B. Definitions:
1. Shop Drawings: Information prepared by the Contractor to illustrate portions of the work in more detail than shown in the Contract Documents.
 2. Coordination Drawings: Detailed, large-scale layout Shop Drawings showing HVAC, Electrical, Plumbing and Fire Protection work superimposed to identify conflicts and ensure inter-coordination of Mechanical, Electrical, Architectural, Structural and other work.
- C. Submittals Procedures and Format:
1. Review submittal packages for compliance with Contract Documents and then submit to Architect for review. Submit transparency and two (2) blue or black-line reproductions of each Shop Drawing larger than 8-1/2" x 11". Submit eight (8) sets of each smaller shop drawing. After review, transparency original of each large Shop Drawing and six (6) sets of each small shop drawing will be returned with reviewer's marks. Electronically submitted shop drawings are acceptable.
 2. Each Shop Drawing shall indicate in title block, and each Product Data package shall indicate on cover sheet, the following information:
 - a. Title.
 - b. Name and location of project.
 - c. Names of Architect, Engineer, Contractor and Subcontractor(s).
 - d. Names of Manufacturer, Supplier, Vendor, etc.
 - e. Date of submittal.
 - f. Whether original submittal or resubmitted.
 3. Shop Drawings showing Manufacturer's product data shall contain detailed dimensional Drawings, accurate and complete description of materials of construction, Manufacturer's published performance characteristics and capacity ratings (performance data alone is not acceptable), plumbing requirements and wiring diagrams. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.
- D. Acceptable Manufacturers:
1. The Architect's Plumbing design for each project is based on the single Manufacturer listed in the schedule or shown on the Contract Drawings. In Division 22 00 00 of these Specifications certain "Alternate Manufacturers" are listed as being acceptable. These are acceptable only if, as a minimum, they:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- a. Accepted by Architect and Engineer.
 - b. Meet all performance criteria listed in the schedules and outlined in the Specifications.
 - c. Have equivalent operating characteristics to those called for in the Specifications.
 - d. Fit within the available space it was designed for, including space for maintenance and component removal, with no modifications to either the space or the product. Clearances to walls, ceilings and other equipment will be at least equal to those shown on the Contract Documents. The fact that a Manufacturer's name appears as acceptable shall not be taken to mean the Architect has determined that the Manufacturer's products will fit within the available space. This determination is solely the responsibility of the Contractor.
 - e. For equipment mounted in areas where structural matters are a consideration, the products must have a weight no greater than the product listed in the schedules or Specifications.
 - f. Products must adhere to all architectural considerations including, but not limited to, being the same size and of the same physical appearance as scheduled or specified products.
- E. Substitutions: Substitution of products by Manufacturers other than those listed shall only be done in accordance with subparagraph "F" "Substitutions and Deviations".
- F. Substitutions and Deviations:
- 1. Deviations from the Contract Documents and the substitution of materials or equipment relative to the "Acceptable Manufacturers" referred to above, shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the substitution or deviation to the attention of the Architect. The letter shall describe changes in the system shown and physical characteristics (connections to adjacent materials, plumbing services, service access requirements, and other characteristics), and differences in operating characteristics or cycles.
 - 2. Without letters flagging the substitution or deviation to the Architect, it is possible that the Architect may not notice such substitution or deviation or may not realize its ramifications. Therefore, if such letters are not submitted to the Architect, the Contractor shall hold the Architect and his consultants harmless for any and all adverse consequences resulting from the deviations being implemented. Adverse consequences shall include, but not be limited to, excessive noise, excessive maintenance, shortened longevity, spatial coordination problems, and inadequate performance versus scheduled design. This shall apply regardless of whether the Architect has reviewed or approved Shop Drawings containing the deviation, and will be strictly enforced.
 - 3. Do not request substitute materials or equipment unless identical material or equipment has been operated successfully for at least three (3) consecutive years. Such materials and equipment shall be a regular cataloged item shown in the current catalog of the Manufacturer. When deviation or substitution is permitted, coordinate fully with related changes to Architectural, Structural, Plumbing, Fire Protection, Mechanical, and other work. Ensure that related changes necessary for coordination of substituted items are made within the Contract Price. Assume full responsibility for safety, operation and performance of the altered system.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- 4. Substitutions of equipment, systems, etc. requiring approval of local Authorities must comply with such regulations and be filed by the Contractor (should filing be necessary).
- 5. Consideration will not be given to claims that the substituted item meets the performance requirements with lesser construction. Performance, as delineated in schedules and in the Specifications, shall be interpreted as minimum performance.
- 6. Approval of proposed deviations or substitutions, if any, will be made at discretion of Architect.
- 7. If equipment is proposed for substitution that is not tested and rated according to industry-wide standards, the Architect shall have the right to have performance tests completed, at the Contractor's expense, to confirm the Manufacturer's performance claims.

G. Submittal Notations: Submittals will be returned from the Architect marked as illustrated below:

| | |
|------------------------------------|--|
| NO EXCEPTION TAKEN NOT ACCEPTED | ACCEPTED AS NOTED REVISE AND RESUBMIT |
|------------------------------------|--|

- 1. Checking is only for general conformance with the design concept of the project and general compliance with the information given in the Contract Documents. Any action shown is subject to the requirements of the Contract Drawings and Specifications. Contractor is responsible for dimensions which shall be confirmed and correlated at the job site; fabrication process and techniques of construction; coordination of his work with that of all other trades; and the satisfactory performance of his work.

H. Schedule: Incorporated the Shop Drawing review period into the construction schedule so that work is not delayed. Contractor shall assume full responsibility for delays caused by not incorporating the following Shop Drawing review time requirements into his project schedule. Allow at least ten (10) working days, exclusive of transmittal time, for review each time a Shop Drawing is submitted or resubmitted with the exception that fifteen (15) working days, exclusive of transmittal time, are required for the following:

I. Schedule:

- 1. Copies of all backflow preventer permits.
- 2. Certification of domestic water system disinfection.
- 3. Coordination Drawings, if required by this Specification.
- 4. Adjustment and balancing certification.
- 5. If more than five (5) Shop Drawings of this trade are received in one (1) calendar week.

J. List of Proposed Equipment and Materials: Within four (4) weeks after Award of Contract and before ordering materials or equipment, submit a complete list of proposed materials and equipment and indicate Manufacturer's names and addresses. No consideration will be given to partial lists submitted out of sequence.

K. Responsibility:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1. The intent of submittal review is to check for capacity, rating, and certain construction features. Contractor shall ensure that work meets requirements of the Contract Documents regarding information that pertains to fabrication processes or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other Sections. Work shall comply with submittals marked "REVIEWED" to extent that they agree with the Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the Shop Drawing errors or deviations from requirements of the Contract Documents. The Architect's noting of some errors while overlooking others will not excuse the Contractor for proceeding in error. Contract Documents requirements are not limited, waived, nor superseded in any way by review.
 2. Inform Subcontractors, Manufacturers, Suppliers, etc. of scope and limited nature of review process and enforce compliance with the Contract Documents.
- L. Material and equipment requiring Shop Drawing Submittals shall include but not be limited to:
1. Plumbing fixtures and trim.
 2. Water heaters.
 3. Floor drains.
 4. Hose bibbs and wall hydrants.
 5. Piping.
 6. Fittings, unions, flanges and couplings.
 7. Insulation.
 8. Sleeve packing.
 9. Valves
 10. Water hammer arresters.
 11. Flashing of floor drains.
 12. Backflow preventers.
 13. Hangers, plates and inserts.
 14. Access panels.
 15. Shop Drawings shall be submitted as a single bound package, organized and titled.

1.07 SURVEYS AND MEASUREMENTS

- A. Base all required measurements, both horizontal and vertical, on reference points established by the General Contractor and be responsible for the correct laying out of the Plumbing work. In the event of a discrepancy between actual measurements and those indicated, notify the General Contractor in writing. Do not proceed with the work required until written instructions have been issued by the General Contractor.

1.08 COORDINATION

- A. HVAC, Plumbing, Fire Protection, and Electrical Drawings are diagrammatic. They indicate general arrangements of Mechanical and Electrical systems and other work. They do not show all offsets required for coordination nor do they show the exact routings and locations needed to coordinate with Structural and other trades and to meet Architectural requirements.
- B. Work shall be performed in cooperation with other trades on the project and so scheduled as to allow speedy and efficient completion of the work.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Furnish to other trades advance information on locations and sizes of all frames, boxes, sleeves and openings needed for their work. Furnish information and Shop Drawings necessary to allow trades affected by the work to install their work properly and without delay.
- D. In all spaces, prior to installation of visible material and equipment, including access panels, review Architectural Drawings for exact locations and where not definitely indicated, request information from Architect. Where the Plumbing work shall interfere with the work of other trades, assist in coordinating the space conditions to make satisfactory adjustments before installation. Without extra cost to the Owner, make reasonable modifications to the work as required by normal Structural interferences. Pay the General Contractor for additional openings, or relocating and/or enlarging existing openings through concrete floors, walls, beams and roof required for any work which was not properly coordinated. Maintain maximum headroom at all locations. All piping, duct, conduit, and associated components to be as tight to underside of structure as possible.
- E. If any Plumbing work has been installed before coordination with other trades so as to cause interference with the work of such trades, all necessary adjustments and corrections shall be made by the plumbing trades involved without extra cost to the Owner.
- F. Where conflicts or potential conflicts exist and engineering guidance is desired, submit sketch of proposed resolution to Architect for review and approval.
- G. Protect all materials and work of other trades from damage which may be caused by the Plumbing work, and repair all damages without extra cost to the Owner.

1.09 MECHANICAL AND ELECTRICAL COORDINATION

- A. Plumbing Subcontractor shall furnish and install various electrical items relating to the plumbing equipment and control apparatus. The Electrical Subcontractor shall be required to connect power wiring to this equipment unless noted otherwise.
- B. The Plumbing and Electrical Subcontractors shall coordinate their respective portions of the work, as well as the electrical characteristics of the plumbing equipment.
- C. All power wiring and local disconnect switches will be provided by the Electrical Subcontractor for the line voltage power. All control and interlocking wiring shall be the responsibility of the Plumbing Subcontractor.
- D. 120V and above power wiring sources extended and connected to heating and ventilating control panels, transformers and switches shall be the responsibility of the Electrical Subcontractor. All low voltage thermostats, zone valve and any switch wiring shall be the responsibility of the HVAC Subcontractor.
- E. Temperature control and equipment wiring shall be installed by the Plumbing Subcontractor.
- F. Pipe heat tracing shall be furnished and installed by the Plumbing Subcontractor. Power connections shall be by the Electrical Subcontractor.
- G. The Electrical Subcontractor will provide all magnetic starters except those furnished as an integral part of packaged equipment.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.10 COORDINATION DRAWINGS

A. Coordination Drawings:

1. The Sheetmetal Subcontractor shall prepare a complete set of 3D model electronic Drawings at a scale not less than 3/8" equals 1'-0", showing structure and other information as needed for coordination. He shall show sheetmetal layout thereon. These will be the Coordination Drawings.
2. The main paths of egress and for equipment removal, from main Mechanical, Electrical, Plumbing and Fire Protection rooms must be clearly shown on the Coordination Drawings. All fire and smoke partitions must be highlighted on the Coordination Drawings for appropriate coordination.
3. Each of the below specialty trades shall add its work to these background Drawings with appropriate elevations and grid dimensions. Specialty trade information is required for fan rooms and mechanical rooms, horizontal exits from duct shafts, crossovers, and for spaces in and above ceilings where congestion of work may occur such as corridors, and even entire floors. Drawings shall indicate horizontal and vertical dimensions, to avoid interference with structural framing, ceilings, partitions, and other services.
 - a. Specialty Trades:
 - 1) Plumbing System.
 - 2) HVAC Piping and Associated Control System.
 - 3) Electrical.
 - 4) Sheet Metal Work.
 - 5) Sprinkler System.
4. Each specialty trade shall sign and date each electronic Coordination Drawing. Return Drawings to the Sheetmetal Subcontractor, who shall route them sequentially to all specialty trades.
5. Where conflicts occur with placement of materials of various trades, the Sheetmetal Subcontractor will be responsible to coordinate the available space to accommodate all trades. Any resulting adjustments shall be initiated and dated by the specialty trade. The Sheetmetal Subcontractor shall then final date and sign each Coordination Drawing. If he cannot resolve conflicts, the decision of the General Contractor shall be final, subject to the approval of the Architect.
6. A Subcontractor who fails to promptly review and incorporate his work on the Coordination Drawings shall assume full responsibility of any installation conflicts affecting his work and of any schedule ramifications.
7. The Sheetmetal Subcontractor shall make electronic copies of all Coordination Drawings. Fabrication shall not start until such electronic Drawings are received by the Architect/Engineer and have been reviewed.
8. Review of Coordination Drawings shall not diminish responsibility under this Contract for final coordination of installation and maintenance clearances of all systems and equipment with Architectural, Structural, Mechanical, Electrical, Plumbing and Fire Protection Contractors.

1.11 INSTALLATION REQUIREMENTS

- A. The arrangement of all Plumbing work shown on the Contract Drawings is diagrammatic only and indicates the minimum requirements of the work. Conditions at the building including actual measurements shall determine the details of the installation. All work shall be laid out and installed so as to require the least amount of cutting and patching.
- B. Review the Architectural Drawings and Specifications before ordering any material and

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

equipment. Any discrepancies shall be brought to the attention of the Architect for his determination prior to proceeding with the work.

1.12 TYPICAL DETAILS

- A. Typical details where shown on the Contract Drawings shall apply to each and every item of the project where such items are applicable. They are not repeated in full on the Contract Drawings, which in many cases are diagrammatic only, but with the intention that such details shall be incorporated in full. Any alternate method proposed for use by the Contractor shall have the prior approval of the Architect.

1.13 SLEEVES, INSERTS

- A. Furnish and install all sleeves, inserts, anchor bolts and similar items to be set into masonry or concrete, as required for Plumbing work as indicated in Division 1. Internal diameter of sleeve ball shall be 1/2" larger than the outside diameter of the pipe or insulation covered line passing through it.

1.14 FIRESTOPPING, SMOKEPROOFING & WATERPROOFING

- A. All cutting, patching, firestopping and waterproofing shall be performed by the Fire Suppression Subcontractor. Refer to Sections 01 73 29 – CUTTING AND PATCHING, 07 00 01 – WATERPROOFING, DAMPPROOFING & CAULKING, and 07 84 13 PENETRATION FIRESTOPPING for project requirements.

1.15 CORING, DRILLING

- A. Core, cut and/or drill all holes in walls and floors required for the installation of sleeves and supports for the Plumbing work as indicated in Division 1.

1.16 ACCESSIBILITY

- A. Install all work such that parts requiring periodic inspection, operation, maintenance and repair are readily accessible.
- B. Furnish all access panels appropriate to particular conditions, to be installed by trades having responsibility for the construction of actual walls, floors or ceilings at required locations.

1.17 SUPPLEMENTARY SUPPORTING STEEL

- A. Provide all supplementary (non-structural) steelwork required for mounting or supporting equipment and materials.
- B. Steelwork shall be firmly connected to building construction as required. Locations and methods of attachment shall be approved by the Architect.
- C. Steelwork shall be of sufficient strength to allow only minimum deflection in conformity with Manufacturer's published requirements.
- D. All supplementary steelwork shall be installed in a neat and workmanlike manner parallel to floor, wall and ceiling construction: all turns shall be made at forty-five and ninety

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

degrees, and/or as dictated by construction and installation conditions.

- E. All manufactured steel parts and fittings shall be galvanized.

1.18 TOOLS AND EQUIPMENT

- A. Provide all tools and equipment required for the fabrication and installation of the plumbing equipment at the site.

1.19 PORTABLE AND DETACHABLE PARTS

- A. Contractors shall retain in their possession all portable and/or detachable parts and portions of materials, devices, equipment, etc. necessary for the proper operation and maintenance of the Mechanical and Electrical systems until final completion of the work, at which time they shall be handed over to the Owner.

1.20 RECORD DRAWINGS, PROJECT CLOSEOUT

- A. As work progresses and for the duration of Contract, maintain a complete and separate set of prints of Contract Drawings at job site at all times. Record work completed and all changes from original Contract Drawings clearly and accurately including work installed as a modification or addition to the original design. Work shall be updated on a weekly basis and shall be made available for review by Architect. Failure to perform this work shall be reason for withholding requisition payments. In addition, take photographs of all concealed equipment in gypsum board ceilings, shafts, and other concealed, inaccessible work. At completion of work, make copies of photographs with written explanation on back. These shall become part of Record Documents.
- B. At the completion of work, prepare a complete set of electronic Record Drawings showing all systems as actually installed. The electronic copies will be made available for the Plumbing Contractor's copying, at his expense. The quantity of copies which are made available shall in no way be interpreted as setting a limit to the number of Drawings necessary to show the required information. The Plumbing Contractor's professional Draft Person shall transfer changes to electronic copies. Submit sets of prints to Architect for comments as indicated in Division 1 – 01 77 00 CONTRACT CLOSEOUT.
- C. The Architect will not certify the accuracy of the Record Drawings. This is the sole responsibility of the Plumbing Contractor.
- D. This trade shall submit the Record Drawings for approval by the Fire and Building Departments in a form acceptable to the departments, when required by the jurisdiction.
- E. Record Drawings shall show record condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual Manufacturer, Make and Model numbers of final equipment installation.

1.21 GUARANTEE/WARRANTY

- A. Guarantee and 24 Hour Service:
 - 1. Guarantee Work of this Section in writing for not less than one (1) year following the date of acceptance by the Owner. If the equipment is used for temporary

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

power etc, prior to acceptance by the Owner, the bid price shall include an extended period of warranty covering the one (1) year of occupancy, starting from the date of acceptance by the Owner. The guarantee shall repair or replace defective materials, equipment, workmanship and installation that develop within this period, promptly and to the Architect's satisfaction and correct damage caused in making necessary repairs and replacements under guarantee within Contract Price.

2. In addition to guarantee requirements of Division 1 and of Subparagraph A above, obtain written equipment and material warranties offered in Manufacturer's published data without exclusion or limitation, in Owner's name.
3. Upon receipt of notice from the Owner of failure of any part of the systems or equipment during the warranty period, the affected part or parts shall be replaced by this Contractor without any reimbursement.
4. Replace material and equipment that require excessive service during guarantee period as defined and as directed by Architect.
5. Provide 24 hour service beginning on the date the project is accepted by the Owner, whether or not fully occupied, and lasting until the termination of the guarantee period. Service shall be at no cost to the Owner. Service can be provided by this Contractor or a separate service organization. Choice of service organization shall be subject to Architect and Owner approval. Submit name and a phone number that will be answered on a 24 hour basis each day of the week, for the duration of the service.
6. Submit copies of equipment and material warranties to Architect before final payment.
7. At end of guarantee period, transfer Manufacturer's equipment and material warranties still in force to Owner.
8. This paragraph shall not be interpreted to limit Owner's rights under applicable Codes and Laws and under this Contract.
9. PART 2 paragraphs of this Specification may specify warranty requirements that exceed those of this paragraph. Those paragraphs shall govern.
10. Use of systems provided under this Section for temporary services and facilities shall not constitute Final Acceptance of Work by Owner, and shall not initiate the guarantee period.
11. Provide Manufacturer's Engineering and Technical Staff at site to analyze and rectify problems that develop during guarantee period immediately. If problems cannot be rectified immediately to Owner's satisfaction, advise the Architect in writing, describe efforts to rectify situation, and provide analysis of cause of problem. The Architect and/or Engineer will direct course of action.

1.22 OPERATING, INSTRUCTION AND MAINTENANCE MANUALS

- A. Refer to Section 01 77 00 – CONTRACT CLOSEOUT and 01 78 23 – OPERATION AND MAINTENANCE DATA for submittal procedures pertaining to operating and maintenance manuals.
- B. Each copy of the approved operating and maintenance manual shall contain copies of the approved Shop Drawings, equipment literature, cuts, bulletins, details, equipment and engineering data sheets and typewritten instructions relative to the care and maintenance for the operation of the equipment, all properly indexed. Each manual shall have the following minimum contents:
 1. Table of Contents.
 2. Introduction:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- a. Explanation of manual and its purpose and use.
 - b. Description of the plumbing systems.
 - c. Safety precautions necessary for equipment.
 - d. Illustrations, schematics and diagrams.
 - e. Installation drawing.
3. Maintenance:
- a. Maintenance and lubricating instructions.
 - b. Replacement charts.
 - c. Trouble-shooting charts for equipment components.
 - d. Testing instructions for each typical component.
 - e. Two (2) typed sets of instructions for ordering spare parts. Each set shall include name, price, telephone number and address of where they may be obtained.
4. Manufacturer's Literature:
- a. The equipment for which Shop Drawings have been submitted and approved.

1.23 QUALITY ASSURANCE

- A. The requirements of the State Building Code and Local regulations establish the minimum acceptable quality of workmanship and materials, and all work shall conform thereto unless more stringent requirements are indicated or specified herein.
- B. All work shall comply with the latest editions of the Codes as referenced herein.
- C. Follow Manufacturer's directions for articles furnished, in addition to directions shown on the Contract Drawings or specified herein.
- D. Protect all work, materials, and equipment from damage during process of work. Replace all damaged or defective work, materials and equipment without additional cost to the Owner.
- E. All equipment and materials for permanent installation shall be the products of recognized Manufacturers and shall be new.
- F. Equipment and materials shall:
 1. Where normally subject to Underwriters Laboratory Inc. listing or labeling services, be so listed and labeled.
 2. Be without blemish or defect.
 3. Not be used for temporary purposes.
 4. Be in accordance with the latest applicable ASME standards.
- G. Products shall meet with the acceptance of all Authorities Having Jurisdiction over the work. Where such acceptance is contingent upon having the products examined, tested and certified by Underwriters or other recognized testing laboratory, the product shall be so examined, tested and certified.
- H. All items of equipment or material of one (1) generic type shall be the product of one (1) Manufacturer throughout.
- I. For items which are to be installed but not purchased as part of the Electrical work, the

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

Electrical work shall include:

1. The coordination of their delivery.
2. Their unloading from delivery trucks driven into any point on the property line at grade level.
3. Their safe handling and field storage until the time of permanent placement in the project.
4. The correction of any damage, defacement or corrosion to which they may have been subjected. Replacement, if necessary, shall be coordinated with the Contractor who originally purchased the item.
5. Field erection and internal wiring as necessary for their proper operation.
6. Mounting in place, including the purchase and installation of all dunnage, supporting members, and fastenings, necessary to adapt them to architectural and structural conditions.
7. Their connection to building wiring including the purchase and installation of all termination junction boxes necessary to adapt and connect them to this wiring. Included also shall be the purchase and installation of any substitute lugs or other wiring terminations as may be necessary to adapt their terminals to the building wiring as called for and to the connection methods set forth in these Specifications.

- J. Items which are to be installed but not purchased as part of the Plumbing work shall be carefully examined upon delivery to the project. Claims that any of these items have been received in such condition that their installation will require procedures beyond the reasonable scope of the Plumbing work will be considered only if presented in writing within one (1) week of the date of delivery to the project of the items in question. The Plumbing work includes all procedures, regardless of how extensive, necessary to put into satisfactory operation, all items for which no claims have been submitted as outlined above.

1.24 DELIVERY, STORAGE AND HANDLING

- A. All materials for the work of this section shall be delivered, stored and handled so as to preclude damage of any nature. Manufactured materials shall be delivered and stored in their original containers, plainly marked with the products' and manufacturer's name. Materials in broken containers or in packages showing watermarks or other evidence of damage shall not be used and shall be removed from the site.

PART 2 - PRODUCTS

2.01 PIPE MATERIALS

- A. The table below indicates pipe class for each service. Refer to the following pages for expanded Specifications for the respective class.

PIPE MATERIALS SPEC INDEX

| Service | Code | Maximum Operating (psig) | Service Limits (Temperature °F) | Pipe Material |
|-----------------------|------|--------------------------|---------------------------------|---------------|
| Domestic Cold Water | CW | 150 below grade | 250 | Copper |
| Domestic Hot Water | HW | 150 below grade | 250 | Copper |
| Sanitary Waste & Vent | S | Gravity | 120 | Cast Iron |

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Each valve type shall be the product of a single Manufacturer. Each system shall be provided with valves as required by Code and shown on the Contract Drawings and shall be installed to facilitate operation, replacement and repair.
- C. Provide access panels for concealed valves behind non-removable ceilings or walls.
- D. Provide shut-off valves on supply piping to individual pieces of equipment.
- E. Provide pipe dope, Teflon tape, wax rings, neoprene gaskets and other jointing compounds as required by best standard practice and only on service as recommended by Manufacturer.
- F. Apply putties and jointing compounds for plumbing fixtures and trim as recommended by Manufacturers.
- G. Valves on insulated piping system shall be equipped with extended handles to accommodate insulation thickness.

2.02 COPPER PIPE (FOR CW & HW SYSTEMS)

| | 1/2" to 3" | 4" and Larger |
|-------------------|---|---|
| Pipe | Seamless copper water tube, drawn temper, Type L. ASTM B-88. See Note 1. | Seamless copper water tube, drawn temper, Type L. ASTM B-8. See Notes 2 & 5. |
| Fittings | Wrought copper, solder-joint. ASTM B-16.22. | Ductile iron coupling with copper alkyd enamel paint coating, ASTM A-536. Grade "E" EPDM elastomer gasket. ASTM D-2000. Equal to Victaulic Style 606 coupling. ASTM B-75 copper alloy fittings. ASTM B-584 grooved end cast bronze fittings for 6" pipe size. |
| Joints | ASTM B-32 solder filled material, Alloy Sb5 "95/5." ASTM B-813 liquid or paste flux. Soldering procedures shall comply with ASTM B-828. | Rolled groove prepared and assembled in accordance with Manufacturer's instructions. |
| Mechanical Joints | Cast copper alloy unions, hexagonal stock with ball-and-socket joint, solder joint ends. ASME B-6.18. | ANSI Class 150 flange adapter equal to Victaulic Style 641 for connections to flanged equipment. ANSI B-16.1 flange dimensions. Watts G-4000-FDA series. |
| Valves Gate | Use ball valve. | Use ball valve. |
| Ball | All bronze, 3 piece, full port, PTFE seats, solder end connections. 600 psig WOG. Apollo 82-200, Milwaukee BA-350, Watts B-6801. | Class 125, cast iron body, epoxy coated. Full port, flanged ends, stainless steel ball and stem. ANSI B16.1 flange dimensions. Watts G-4000 FDA series. |

A. Notes:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1. Below grade water piping 3" and smaller be Type K copper with bituminous coating copper brazed joints, BcuP filler alloy. ANSI/AWS A5.8 procedures shall be per ANSI/AWS B2.2.
2. Contact between dissimilar metals shall be made with dielectric couplings or dielectric flanges. Contact between ferrous and stud bolts and bronze flanges shall be electrically insulated with non-metallic washers.
3. Provide mechanical joint connections to all equipment such as water heaters, etc.
4. Above grade water piping 8" and larger shall be Schedule 40 galvanized steel piping with galvanized fittings and grooved joints.

2.03 SANITARY WASTE AND VENT (CAST IRON)

| | Above Grade | Below Grade |
|-----------------|--|---|
| Piping | 3" and Larger: Hubless cast iron soil pipe, service weight. ASTM-A-888, CISPI 130. 2-1/2" and Smaller: Hubless cast iron soil pipe, service weight. ASTM A-88, CISPI 130 or type M copper tubing. ASTM B8872. See Note 1. | 2" and Larger: Hub and spigot cast iron soil pipe, extra heavy. ASTM A-74 or service weight if Code approved. Piping shall be asphalt or coal tar pitch coated. |
| Fittings | 3" and Larger: Hubless cast iron fittings, service weight. ASTM-A-888, CISPI 801. 2-1/2" and Larger: Hubless cast iron fittings, service weight, ASTM A-888, CISPI 301 or wrought copper DWV fittings. See Note 1. | 2" and Larger: Hub and spigot cast iron fittings, extra heavy. ASTM A-74. Asphalt or coal tar pitch coated. DWV pattern. |
| Joints | Hubless Cast Iron: Heavy-duty stainless steel band coupling with neoprene gasket. Bank torque of 80 foot/pounds 15 psig pressure rating. Husky SD 4000 or CLAMP-ALL HI-TORQUE 80. | Caulked with leak and oakum or neoprene compression gaskets conforming to ASTM C-564. |
| Backwater Valve | Cast iron gravity flow type, bronze mounted, hub end. Exterior shall be mastic coated, bolted or extended cover in accordance with installation parameters. J.R. Smith Co. 7012-7022, JOSAM 67500, Zurn Industries Z-1095. | |

A. Notes:

1. Copper tube and fittings shall not be used on urinal wastes.
2. CISPI 310 no-hub couplings will not be accepted as equal to Manufacturer's listed.

2.04 PRESSURE, FLOW AND TEMPERATURE CONTROL DEVICES

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- A. Thermostatic Mixing Valves:
 - 1. Pre-piped thermostatic mixing valve, inlet check valves, isolation valves, dial thermometer and mounting hardware.
 - 2. Acceptable Manufacturers: Powers, Leonard or Lawler.
- B. Pressure and Temperature Relief Valves on Water Heaters:
 - 1. Combination pressure and temperature (P&T) relief valves shall be automatic, ASME-rated, AGA and CGA-certified, ANSI standard, bronze body. Pressure relieving setting shall be 150% of the working pressure of the unit to a maximum of 150 psi; temperature relieving setting shall be 120° F. Temperature relieving capacity shall be selected on AGA-CGA rating.
 - 2. Valves shall be by Watts Regulator Co. Approved equivalent valves by Robertshaw or Cash-Acme may be provided.
- C. Vacuum Relief Valves on Cold Water Inlet to Water Heaters and Tanks:
 - 1. Relief valves shall be bronze body composition disc with 200 psi working pressure and 250° F temperature rating.
 - 2. Valves shall be by Watts Regulator Co. Approved equivalent valves by Taco or B&G may be provided.
- D. Vacuum Breakers:
 - 1. Atmospheric vacuum breakers shall be all-bronze, for temperature up to 210° F: Watts 800 or equivalent by Neptune or Febco.

2.05 INSULATION

- A. Insulation shall be by Owens-Corning, Certain-Teed or Manville.
- B. Insulation shall be installed by insulation firm regularly specializing in this work and employing men particularly skilled therein. No covering applied by plumber's "helpers" will be acceptable.
- C. Insulation installation shall meet Manufacturer's recommendations. No insulation shall be applied until piping has passed tests as required by Authorities Having Jurisdiction.
- D. Insulation, jackets and adhesives shall be flame-retardant and shall have ASTM E-84 fire hazard ratings of 25 flame spread, 50 smoke developed and 50 fuel contributed.
 - 1. Interior Applications – Jackets:
 - a. Type a – Vapor Barrier Jackets: Kraft reinforced foil vapor barrier with self-sealing adhesive joints. Jacket shall be heavy duty fire retardant material with glass fiber reinforcing and self-sealing lap. Jacket will be factory applied to the insulation. Jacket shall have neat, white Kraft finish or white vinyl suitable for painting, with bead puncture resistance of 50 units minimum. Vapor barrier shall be .001" aluminum foil adhered to the inner surface of the jacket. Permeance shall not exceed 0.02 perms. Jacket shall be Owens-Corning Fiberglass "ASJ-SSL" or Manville FlameSafe "AP-T".
 - b. Type b – PVC Jackets: One piece, pre-molded type.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- E. Insulation and jacketing shall be in accordance with following:
 - 1. Type A: Glass fiber insulation; ANSI/ASTM C547; “k” value of 0.22 – 0.28 at 100° F non-combustible.
 - 2. Type B: Molded, flexible closed cell vinyl, ASTM D635; “k” value of 1.17 bacterial resistant.
- F. Schedule: The following piping systems require insulation:

| Piping System | Type | Insulation Thickness Inch (mm) | Jacket Type |
|-----------------------------------|------|-----------------------------------|-------------|
| Domestic Hot Water Supply | A | 1" | a, b |
| Domestic Cold Water | A | 1" | a, b |
| Handicap Lav. Hot Water and Waste | B | 1/8" | b |

- 1. Notes:
 - a. Unless noted otherwise, Section “F” pertains to all piping specified system. This note pertains to all piping scheduled above.
- G. Pipe hangers shall be outside insulation and shall incorporate 12", 26 gauge protection shields. Insulation on piping that passes through walls or partitions shall pass continuously through sleeves, except at firewalls, smoke partitions and floor penetrations where space between sleeves and piping shall be fire stopped with approved packing.

2.06 PIPE SUPPORTS

- A. Provide adjustable clevis hangers for hanger sizes 4" and larger and cast brass split-ring hinged hangers or band type hangers for smaller. Support piping from building structure to maintain required grade and pitch of pipe lines, prevent vibration, secure piping in place and provide for expansion and contraction. Hangers on all insulated pipe shall be clevis type.
- B. Provide vertical brackets and guides for horizontal piping where it is racked along walls. Trapeze hangers may be used where conditions permit. Provide all necessary pipe clips, anchors and sundries for proper alignment and support of piping. Hangers for copper piping shall be coated for dielectric isolation. Hangers for PVC, polypropylene and other plastic piping shall be extended V-shaped, with angle iron pipe supports as necessary.
- C. Hanger rods shall have machine threads. Beam clamps, concrete inserts and expansion shields shall be provided as required. No ramset or shot shields will be allowed.
- D. Hanger spacing shall meet requirements of State and Local Plumbing Codes. In no case shall horizontal piping be supported at intervals greater than 10'-0".
- E. Piping below lowest level slab (that is, buried piping), need not be supported from structure if slab is not designed as structural slab. The Plumbing Contractor shall support all piping under structural slabs on grade.
- F. Pipe supports shall not bear on sleeves.
- G. Horizontal piping shall be suspended from building structure by mild steel rod connecting pipe hanger to inserts, beam clamps, angle brackets and lag screws as required by

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

Building Construction in accordance with the following:

| Rod Size | Pipe Size |
|----------|--------------|
| 3/8" | 1/2" to 2" |
| 1/2" | 2-1/2" to 4" |
| 5/8" | 5" to 12" |
| 3/4" | 15" |

- H. Hangers on insulated lines shall be sized to fit the outside diameter of pipe insulation. Provide hangers for insulated piping with 12" long, 18 gauge galvanized insulation shields.
- I. Piping at equipment and control valves shall be supported to prevent strains or distortions in connected equipment and control valves. Piping at equipment shall be supported to allow for removal of equipment, valves and accessories with a minimum of dismantling and without requiring additional support after these items are removed.
- J. Piping installed under this Section shall be independently supported from building structure by means of beam attachments and not from piping, ductwork or conduit of other trades. Supplementary steel, including factory-fabricated channels, required to meet the requirements specified herein, shall be provided by the Plumbing Contractor.
- K. Maximum spacing of hangers on runs of steel, copper or brass pipe shall be as follows:

| Schedule: Hanger Spacing in Feet/Pipe Material | | |
|--|--------------|------------------------|
| Pipe Size (Inches) | Steel (Feet) | Copper or Brass (Feet) |
| 1/2 to 1 | 7 | 5 |
| 1 to 1/4 | 10 | 6 |
| 1 to 1/2 | 10 | 8 |
| 2 to 8 | 10 | 10 |

- L. Maximum spacing of hangers on no hub cast iron soil pipe shall be 5' and hangers shall be provided at all changes in direction. Hanger rods to support piping from the structure or supplementary steel shall not exceed 4' in total length. Where pipe support assemblies exceed 4' in total length, Plumbing Contractor shall provide factory-fabricated channels and associated accessories.
- M. Hangers in areas exposed to weather or in unheated spaces shall be provided with a shop coat of rust inhibited paint. Hanger rods shall be hot dipped galvanized.
- N. Hangers and rods for under slab piping shall be hot dipped galvanized.

2.07 SLEEVES, INSERTS, FIRE STOPPING AND ESCUTCHEONS

- A. All pipes passing through floors, walls or partitions shall be provided with sleeves having an internal diameter one inch larger than the outside diameter of pipe. Pipe Sleeve Materials:
 - 1. Sleeves through floors and through exterior, structural and fire-rated construction, shall be hot dipped galvanized Schedule 40 steel pipe. Sleeves shall extend 1" above finished floor.
 - 2. Sleeves through partitions and non-fire-rated construction shall be 26 gauge galvanized steel with lock longitudinal seams or approved plastic pipe.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. Provide waterproofing membrane locking devices at floors. Provide 150 lb. Slip-on welding flanges at exterior wall penetrations.
 4. Provide one-piece chrome plates escutcheons on all wall, floor and ceiling pipe penetrations in finished rooms and areas.
- B. Fire stop penetration seals in fire-rated construction shall be products of STI SpecSeal, 3M, Proset Systems Firefill or Dow and shall be installed in accordance with the latest requirements of ASTM E814 (UL 1479). Fire stop penetration sealants for non-metallic and insulated piping shall be intumescent (STI SpecSeal Series 100 Sealant or SpecSeal Collar or approved equal). Provide mineral fiberboard, matting or putty for damming and forming. Finish seals flush to wall surface and fill gaps with silicone adhesive sealant caulking (Dow 96-081 RTV or approved equal). Provide 1" thick ceramic fiberboard on both sides of penetrations in 2 and 3 hour rated walls and floors less than 8" thick.
- C. Packing for sleeves that do not require maintenance of fire rating shall be oakum, silicate foam, ceramic fiber or mineral fiber with approved sealant. Pack or foam to within one inch of both wall surfaces. Seal penetration packing with approved caulking and paintable waterproof mastic surface finish or silicone caulking.
- D. Waterproof Pipe Penetrations:
1. Sleeves through outside walls shall be provided with pipe to wall penetration closures equal to Link-Seal Thunderline Corporation. Seals shall be mechanical type of interlocking rubber links shaped to fill space between pipe and sleeve. Links shall be assembled with bolts to form a belt around the pipe with pressure plate under each bolt head and nut. After seal assembly is positioned, tightening of bolts will provide watertight seal. This Contractor shall determine the required inside diameter of each individual sleeve before ordering, fabricating or installing. The inside diameter of each sleeve shall be sized as recommended by the Manufacturer to fit the pipe and Link-Seal to assure a watertight joint.
 2. Prefabricated modular sleeves shall be Mason Industries (SWS) or approved equal stiffened galvanized steel sleeves with preformed closed-cell elastomeric seal (non-fire rated) or preformed mineral fiber or silicone foam seal (fire rated).
 3. Provide waterproof 1" single ring set in silicone and bolted to floor or wall at chipped and drilled penetrations of existing slabs on grade and existing walls below grade.
- E. Inserts shall be individual or strip type or pressed steel construction with accommodation for removable nuts and threaded rods up to 3/4" diameter, permitting lateral adjustment. Individual inserts shall have an opening at the top to allow reinforcing rods up to 1/2" diameter to be passed through the insert body. Strip inserts shall have attached rods with hooked ends to allow fastening to reinforcing rods.
- F. Unless otherwise specified herein, escutcheons shall be cast brass chrome plated type and provided with a set screw to properly hold escutcheon in place.
- 2.08 TRAPS AND STRAINERS
- A. Provide cleanouts in soil and waste piping on straight runs at changes in directions and at foot of stacks and other points where required by inspecting Authorities. Cleanouts shall suit construction in which they are to be installed.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Maximum horizontal distance on straight runs between cleanouts in piping 4" and smaller shall be 50 feet. In piping 5" and larger, maximum horizontal distance between cleanouts shall be 100 feet.
- C. Cleanouts shall be same size as pipe 4" and smaller. Cleanouts for piping larger than 4" shall be sized per local Code and in no circumstance shall they be less than 4" in diameter. No reduction in cleanout sizes for pipe 4" and smaller is permitted.
- D. Traps not integral with fixtures and in accessible locations shall have brass trap screw protected by water seal and will be regarded as cleanout.
- E. Bodies of cleanout ferrules in bell and spigot piping shall be standard pipe sizes conforming in thickness to that required for pipe and fittings and shall extend not less than 3/4" above hub of pipe.
 - 1. Cleanout plug shall be cast brass with raised nut 3/4" high.
 - 2. Cleanouts in copper waste piping shall be soldered brass cleanout fittings with extra heavy brass screw plugs of same size as line.
 - 3. Cleanouts in threaded waste piping shall be cast iron, drainage T pattern, 90 branch fitting with extra heavy brass screw plugs of same size as pipe.
 - 4. Floor cleanouts in finished areas shall be per schedules equivalent to J.R. Smith, Wade or Zurn.
 - 5. Floor cleanouts in unfinished areas shall be per schedules equivalent to J.R. Smith, Wade or Zurn.
- F. Provide test tees with cleanout plugs at foot vertical soil, waste, acid waste and roof conductor lines and at each floor. Cleanouts on vertical lines concealed behind finished walls shall extend to back of finish wall; provide wall plate. Obtain Architect's approval for wall plate locations and reroute piping if necessary.
- G. Cleanouts shall open in direction of flow of drainage line served or at right angles thereto.
- H. Keep cleanout plugs clean and unimpeded. Prevent covering with cement, plaster or other permanent finished materials.

2.09 THERMOMETERS AND PRESSURE GAUGES

- A. Provide bronze Bourdon tube pressure gauges where shown on Contract Drawings and where specified, by U.S. Gauge, Terice or Weksler, accurate to +1%.
 - 1. Gauges shall have white faces with black-filled engraved lettering. Gauge bodies shall be set in phenolic cases. Provide pulsation dampers and gauge cocks to isolate each gauge.
 - 2. Gauges shall be easily accessible and easily read. Gauges readable from floor at less than 5 feet shall be 4-1/2" dials. Other gauges shall have 6" dials. Gauges graduations shall meet limit requirements of normal operation. Gauges shall indicate at mid-scale.
 - 3. Provide pressure gauges at the inlet and outlet of each pump.
 - 4. Provide pressure gauges at each water entrance, downstream of the water meter and on each side of PRV stations.
- B. Provide separable well V-case thermometers by U.S. Gauge, Terice or Weksler where

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

shown on Contract Drawings and where specified. Thermometers shall have 9" scale and white face with black-filled engraved letters. Thermometers shall be angular or straight stemmed, as conditions necessitate. Thermometer wells shall be bronze and shall be installed so as to ensure minimum restriction of water flow in pipe and shall be installed to be able to be viewed from the floor.

1. Provide thermometer at the inlet and outlet of each water heater and where shown on Contract Drawings. Thermometers shall have scale range of 30°-240° F with 2° scale division.
2. Provide thermometer in hot water return system at each hot water recirculation pump and where shown on Contract Drawings. Scale range shall be 30°-240° F with 2° scale division.

2.10 WALL HYDRANTS AND HOSE BIBBS

- A. Provide wall hydrants as shown on the Contract Drawings. Provide hose bibbs in every toilet core where more than one (1) flushing fixture is shown.
- B. Wall hydrant shall be recessed box anti-siphon, non-freeze, key-operated, 3/4". Hydrant shall be Watts or equivalent by Josam or Zurn. Coordinate cover and plate finish with Architect prior to ordering any units.
- C. Hose bibb shall be chrome plated bronze or brass with replaceable hexagonal disc, hose thread spout and integral vacuum breaker in conformance to ANSI/ASSE 1011. Hose bibb shall be equal to Chicago No. 952-CP or equivalent, T&S Brass or WaterSaver.

2.11 WATER HAMMER ARRESTERS

- A. Provide water hammer arresters at fixtures with automatic solenoid or cylinder operated valves, automatic flush valves quick-closing valves or solenoid valves and where indicated on Contract Drawings.
- B. Fixtures and equipment in battery installation may use single water hammer arrester properly sized for connected load.
- C. Provide proper access to water hammer arresters in chases, utilizing a minimum 12" x 12" access panel furnished by this Contractor.
- D. Water hammer arresters shall be installed in accordance with Manufacturer's recommendations and not less than one (1) installed per core piping hot system and core piping cold system. Arresters shall be equal to J.R. Smith, Zurn or PPP.

2.12 PLUMBING FIXTURES AND TRIM

- A. Refer to Architectural and Plumbing Drawings for quantities, locations and mounting heights of fixtures provided under this Section.
- B. Fixture trim, traps, faucets, escutcheons and waste pipes exposed to view in finished spaces shall be I.P.S. brass with polished chromium plating (CP) over nickel finish.
- C. Vitreous china fixtures shall be regular selection fused and vitrified to produce homogeneous material with close grain without pores. Surfaces that contact walls, floors

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

and other fixtures shall be set true.

- D. Enameled surfaces on cast iron fixtures shall be of suitable thickness to provide the highest commercial grade. Exterior exposed surfaces not enameled shall be treated at factory with one (1) coat of filler.
- E. Affix Manufacturer's guarantee label or trademark to fixture to indicate first quality. Acid-resisting enamel fixture shall bear Manufacturer's symbol signifying resistance to acid.
- F. Set fixtures with wall outlet flanges at proper distance from floors and walls with closet setting compound or gasket.
- G. Catalog designations and Manufacturer's names of vitreous china and enameled cast iron fixtures are specified to establish standards of quality for performance and materials. Equivalent fixtures by Kohler, American Standard or Eljer may be submitted for consideration.
- H. Vitreous china and enameled cast-iron fixtures shall be white throughout, unless specified otherwise. Closet seats shall match closet fixture color.
- I. Fixture Types: As listed on Contract Drawings.

1. Notes:

a. Standards:

- 1) Floor Drains:
 - a) Cast Iron – ASME A112.21.1M
 - b) Plastic – ASTM A112.21.M
 - c) Cast Iron Trench Drains – ASME A112.21.1M
- 2) Cleanouts: Cast Iron – ASME A112.36.2M
- 3) Roof Drains: Cast Iron – ASME A112.21.2M
- 4) Sleeve Systems: UL 1479

2.13 EQUIPMENT – GENERAL

- A. The following mechanical equipment is to be supplied by a single Manufacturer as part of this package unless otherwise noted.
- B. Equipment Tags:
 - 1. All equipment shall be tagged using black phenol background with a 1/4" white engraved lettering tag affixed to the piece. Tag shall be minimum of 2" high and 4" long for large equipment and shall include the tag number and the piece.
 - 2. Equipment Tag Sequence (Example):
 - a. G-CMP – 1XXX where:
 - b. G – Indicates system (Natural Gas)
 - c. CMP – Indicates equipment (Booster Pump)
 - d. 1 – Indicates piece number (1, 2, 3...)
 - e. XXX – Indicates building number (if applicable)
- C. All equipment furnished in the following pages shall be furnished with seismic anchoring points. Equipment supplied shall be constructed with a seismic rating.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.14 WATER HEATERS

- A. Provide water heaters of sizes and types indicated on the schedule sheets. Heaters shall be tested at 200 psi and rated for working pressure of 150 psi and shall bare stamp certifying testing and rating.
- B. Provide pressure and temperature relief valve and vacuum relief valve.
 - 1. Pressure and temperature relief valves shall be at least 3/4" and shall be rated and listed for heater input rating and as required by ANSI and ASME Standards. Temperature relief valves shall be installed within top 6" of tank.
 - 2. Vacuum relief valves shall meet ANSI standards requirements and shall be rated and listed for heater input rating and as required by ANSI and ASME Standards. Temperature relief valves shall be installed within top 6" of tank.
- C. Storage type heaters shall have minimum standby heat loss in accordance with requirements of State Energy Code. Tank and heaters which are not factory insulated and jacketed shall be field insulated.
- D. Heaters and tanks shall be of size and type as scheduled on Contract Drawings.

PART 3 - EXECUTION

3.01 COORDINATION

- A. Cooperate and coordinate with work of other Sections in executing work of this Section.

3.02 EXPANSION PROVISIONS

- A. Allow for expansion with offsets, loops, swing joints, expansion joints and other means, where necessary to protect piping systems as shown. Take-offs from mains to run outs shall not have less than a three (3) elbow swing.
- B. Anchor mains and risers with loops or offsets to structure to impart expansion toward loops and offsets. Anchors shall be forged wrought iron, secured to pipe and structure. Provide vibration isolation as required and as specified.
- C. Provide pipe alignment guides to guide expanding pipe to move freely from anchor points towards expansion joints, offsets and other expansion provisions.

3.03 PIPE IDENTIFICATION

- A. Provide color-coded pipe identification markers on piping installed under this section. Pipe markers shall be snap-on laminated plastic protected by clear acrylic coating. Pipe markers shall be applied after Architectural painting where such is required.
- B. Provide arrow marker with each pipe content marker to indicate direction of flow. If flow can be in either direction, use double-headed arrow marker.
- C. Main shall be labeled at points of entrance and exit from mechanical room, adjacent to each valve, on each riser, at each tee fitting, at points of entrance and exit from building, at least once in each room and at intervals no longer than 20'.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- D. In general, 2" high legend shall be used for pipe lines 4" in diameter and larger, and 3/4" high legend shall be used for pipe lines 3" in diameter and smaller.
- E. Markers shall be Seton, MIS or approved equivalent.
- F. Color banding shall meet ANSI latest and OSHA requirements.
- G. Markers shall have legends and color coding with black letters:
 - 1. Markers are to be applied to all piping, regardless of under jacket colors per the following schedule:

| Service | Legend | Background Color |
|------------|--------------------|------------------|
| Cold Water | Cold Water | Green |
| Hot Water | Domestic Hot Water | Yellow |
| Sanitary | Sanitary Sewer | Green |
| Vent | Vent | Yellow |

- H. In areas without hung ceilings, colored PVC jackets shall be used per the schedule.
 - 1. All insulated piping exposed in mechanical rooms shall be covered with a Ceel-Co plastic jacket. Color pattern and system identification legend shall be as in the schedule.
 - 2. This plastic jacket shall include fitting covers and piping covers.
 - 3. Piping to be covered with this plastic jacket shall be insulated and finished as herein specified and then the plastic jacket shall be applied.

3.04 TAGS, VALVES, EQUIPMENT AND INSTRUMENTS

- A. Upon completion of work, attach engraved laminated plastic tags to all valves and instrumentation. Equipment shall bear a stamped stainless tag. Tags shall have black characters on white face, consecutively numbered and prefixed with letter "P" for general valves. Tags shall bear the number used in the P&IDs for those items so marked.
- B. Embossed or engraved aluminum or brass tags may be substituted if desired. Tags shall be at least 1/8" thick.
- C. Tags shall be at least 1" diameter with numerals at least 3/8" high and attached by "S" hooks and chains.
- D. Nameplates, catalog numbers and rating identifications shall be securely attached to electrical and mechanical equipment with screws or rivets. Adhesives or cements will not be permitted.
- E. Non-potable water outlets shall be identified with permanently attached yellow color-code or 4" high triangle tag reading "Water Unsafe".
- F. Coordinate numbering system with existing piping tags as not to duplicate numbers.

3.05 FLASHING AND COUNTER FLASHING

- A. Floor drains shall be flashed watertight with 20 ounce sheet copper flashing which shall extend 8" beyond drain flashing flange.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Provide counter flashing for roof penetrations required under this Section including vents and roof drains.
- C. Flashing of vents required under this Section shall be done under other Sections.

3.06 JOINTS AND CONNECTIONS

- A. Joints and connections shall be permanent and shall be gas and water-tight. Jointing shall be types specified for serviced indicated. Joints and connections shall meet requirements of Manufacturer's best recommended practice. All transitions between different piping materials shall be made using approved adapters. Adapters for transitions between two (2) types of piping materials shall be manufactured for purpose intended.

3.07 INTERIOR WATER SUPPLY SYSTEM

- A. Provide a complete, new domestic hot and cold water piping system as indicated on Contract Drawings and as specified, including supplies to fixtures and indicated equipment. Piping shall be pitched at least 1" in 40 feet so that it can be drained completely at low points with drain valves. Piping shall be pitched up toward fixtures for proper air relief. Provide automatic air vents with outlet piped to floor and gate valve ahead of air vents, where offsets cannot be vented by means of fixture connections.
 - 1. Pipe used in piping assembly shall be clean and shall have ends square and reamed before putting into fittings.
 - 2. Cut tube to required length with hacksaw or tube cutter designed for copper work.
 - 3. Remove burrs from inside and outside of cut edge and clean end of tube with steel wool or sand cloth until discoloration is removed and metal is smooth and bright.
 - 4. Oxides shall be removed by sand cloth and brush.
 - 5. Removal of oxides or discoloration of pipe and fittings by acids or self-cleaning flux is forbidden.
 - 6. Apply a thin, uniform and complete coating of reliable brand of soldering flux (Nokorode or Crest) to cleaned surfaces of tube and fittings.
 - 7. When joints are soldered, remove excess solder with a cloth or brush leaving a fillet of solder in chamber at end of the fitting.
 - 8. Where quick closing valves such as solenoid or flush valves are being used, piping shall be protected from water hammer by shock absorbers. Shock absorbers shall be installed at all batteries of fixtures that are operated by flush valves. Shock absorbers shall be as manufactured by PPP, J.R. Smith, or Zurn, and shall conform to the Plumbing and Drainage Institute (PDI) published requirements.
 - 9. Connections to tanks and equipment shall be made with unions.
 - 10. Water services supplying the building shall flow through in-line strainers and shall have containment backflow protection as indicated.
 - 11. Shut-off and control valves on main distribution and branch lines shall be located for easy access and operation. Branch piping shall be valved with access panels provided as required at locations shown on Contract Drawings and determined in field.

3.08 INTERIOR SANITARY WASTE AND VENT PIPING

- A. Provide waste, drainage and vent lines shown in building as shown on Contract Drawings.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

Vents shall extend through roof and shall increase to at least 4". Piping shall be assembled and installed without undue strains and stresses and provision shall be made for expansion, contraction and structural settlement.

- B. Interior horizontal sanitary waste piping shall be installed in practical alignment at uniform grade of at least 1/8" per foot, but 1/4" per foot where Code dictates and as shown on Contract Drawings.
- C. Vents from fixtures or line of fixtures, when connected to vent line serving other fixtures, shall be extended at least 6" above flood level rim of highest of fixtures to prevent use of vent line as waste. No vent terminal shall be directly beneath door, window or other ventilating opening of building, nor shall any vent be within 12 feet horizontally of such opening.
- D. Provide sleeves for pipe that pass through walls.
- E. Provide 3" air gap on equipment and drains that discharge to floor drains.
- F. Provide an air gap in which the vertical distance through the free atmosphere between the waste pipe and the floor rim of the receptacle into which it is discharging is a minimum of 2 pipe diameters greater.
- G. Piping shall be run straight and plumb and offsets shall be made at an angle of not less than 45.
- H. Carefully lay out work in advance so pipes pass through openings and permit proper pitch to stacks. Due to extensive ventilation and lighting systems all trades shall coordinate work with work of other trades.
- I. Hub and spigot soil pipe shall be thoroughly assembled with joints of picked oil-free oakum packed tightly into space between pipes to a depth of 1-1/2". Remaining space shall be filled in by pouring with molten lead, caulked to ensure tight joints without straining bell. After caulking, lead shall be flush with ends of bell.
- J. No hub soil pipe shall be assembled with any hub heavy-duty stainless steel couplings and neoprene gaskets.
- K. Cleanouts:
 - 1. Provide cleanouts with brass caps and screws same size as pipe up to 4 inches and not less than 4 inches for larger piping at the ends of all branches on soil and waste piping and in such other portions of the piping where run is over 50 feet. Locate floor cleanouts as indicated on Contract Drawings.

3.09 WATER ENTRANCE

- A. Run exterior water service piping for domestic water, beginning 10'-0" outside building wall, as shown on Contract Drawings.
- B. When water pipe laying is not in progress, close ends of pipe with watertight plugs. If water enters pipe, flush and clean line.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Keep excavation for underground water main open until system has been tested, inspected and approved.
- D. Piping shall be bedded as specified in Division 33.

3.10 EXTERIOR SANITARY SEWER

- A. Sanitary line ending 10'-0" outside exterior building wall shall run by gravity as shown on Contract Drawings.
- B. Check line and grade of piping with laser designed for purpose intended.
- C. Plug open ends of piping when work is not in progress.
- D. Piping shall be bedded as specified in Division 33.

3.11 FIXTURE ROUGHINGS

- A. Install rough plumbing including fixture carriers and supports, valves and water hammer arresters within chase tolerances. Supply roughing through finish walls and at hose bibbs and shower heads shall be secure and free of movement. Locate valves and water hammer arresters within 12 inches of approved access panel location.
- B. Align exposed waste and supply pipe roughings with fixture connections within 1 inch tolerance. Provide flush valves in alignment with the fixture, without vertical or horizontal offsets. Obtain Fixture Manufacturer roughing data sheets for recommended roughing dimensions.
- C. Provide fixture templates for Casework Contractor for counter mounted sinks and lavatories.
 - 1. Rough handicapped use water closets to locate the flush valve handle on the wide side of the toilet stall.
- D. Secure fixture supports to floor slab construction with lag bolts and metal expansion shields to support at least 250 pounds on the front rim of the fixture for 5 minutes.
- E. Mounting heights shall be in accordance with all local and State Codes and latest ADA Standards.
- F. Provide fixture rough-in piping connections, sizes in accordance with schedule on Contract Drawings.

3.12 EQUIPMENT ROUGHINGS AND CONNECTIONS

- A. Provide roughing and final connections for water and waste systems including indirect wastes, traps, tailpieces, stops and supplies, valves and unions for all equipment and fixtures including those supplied under other sections.
- B. Provide complete plumbing roughings with capped and valved service with union of flange to suit Owner furnished equipment.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Refer to Architectural floor plans and Equipment schedules for all equipment provided under other sections or by Owner. Roughing for all equipment including floor drain locations shall be based on approved Shop Drawings. Install indirect waste discharge to spill into floor drain funnel. Floor drain grate and sediment bucket shall be removable.

3.13 INSTALLATION OF SPECIALTY ITEMS

- A. Install vacuum relief valves located above the top of the heater on cold water supply lines to water heaters.
- B. Gauges: Install gauges where indicated on the Contract Drawings and as specified. Install pressure gauges at water service entrance on inlet and outlet sides of strainers, filters, backflow preventers and pumps. Install temperature gauges on inlet and outlet side of water heaters and on recirculation line at least 10 feet upstream of circulation pumps. Gauges shall be legible from 4 feet to 6 feet above the floor.
- C. Trap Primers: Install trap primer and related piping through the floor and connect to primer connection on floor drains in all areas where maintaining the trap seal could be a problem. Trap seal gaskets may be installed if acceptable by Code and Local Authority Having Jurisdiction.
- D. Water Hammer Arresters: Provide water hammer protection at all self-closing fixtures and equipment. Equip quick-closing valves such as flush valves and solenoids with water hammer arresters. Banks of plumbing fixtures may be protected with a single properly sized and located PDI certified arrester. Obtain approval for access panel location prior to installation.

3.14 INSTALLATION OF FIXTURES

- A. Mount fixtures level at the elevations shown on Architectural Drawings. Refer to toilet room elevations and casework details.
- B. Install handicapped use fixtures in accordance with the requirements to the Architectural Access Board Code, latest ADA standards and ANSI A117.1. Insulate hot water supply and waste piping under lavatories.
 - 1. Where urinals are provided, install one urinal with the rim mounted 17 inches above the finish floor in compliance with the Handicapped Code.
- C. Grout walls and floor mounted fixtures watertight where the fixtures are in contact with walls and floors.
- D. Caulk deck-mounted trim at the time of assembly, including fixture and casework mounted. Caulk self-rimming sinks installed in casework.

3.15 CROSS CONNECTION PROTECTION

- A. All potable water piping outlets and connections to equipment or machinery shall be protected against backflow by means of an air-gap or approved backflow preventer.
- B. Backflow preventer type, application and installation shall comply with the Commonwealth of (Massachusetts), Department of Environmental Protection (DEP)

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

Drinking Water Regulations 310 CMR 22.00.

- C. Mount backflow preventers horizontally, unless device is approved for vertical installation, at heights and with clearances as required by DEP regulations.
 - 1. Reduced pressure backflow preventers shall be installed between 36" to 48" above the floor with a minimum of 6" clear space all around.
 - 2. Double check valve assemblies shall be installed such that the top of the device is between 30" and 53" above the finished floor, with 12" clear space all around.
- D. Submit plans to DEP and obtain permit for each reduced pressure or double check valve backflow preventer installation and submit copies of Permit to Architect of Record.
- E. Provide indirect waste piping with funnel to receive discharge from reduced pressure backflow preventer atmospheric vents and spill through air gap into floor drain.

3.16 CLEANING

- A. Clean systems thoroughly before testing. Fixtures, equipment, pipe, valves and fittings shall be free of grease, metal cuttings, dirt and other foreign material. Remove protective covers. Fixtures (including lavatories, water closets and urinals) shall be cleaned and ready for use.
- B. Repair stoppage, discoloration and damage to parts of building, finish and furnishings due to failure to properly clean piping system within Contract Price.
- C. After completion of project, clean the exterior surface of equipment included in this section, including concrete residue.
- D. After the completion of the work, all materials and equipment surfaces shall be thoroughly cleaned and polished in accordance with the finish of the material. All chromed surfaces shall be highly polished.
- E. Before the systems are tested and balanced, pipes and equipment shall be thoroughly cleaned so that no dirt, dust, or other foreign matter will be deposited in or carried through the systems.
- F. Water systems shall be thoroughly flushed and cleansed of any and all deleterious materials at least once before system is placed in operation. At this time, these systems will be carefully checked for leaking and defects as hereinafter specified. An approved cleansing agent will be used in flushing.
- G. At all times, keep the premises clear of undue accumulation of rubbish.
- H. On completion of the work, remove all rubbish and debris resulting from this Contract and dispose of same. At any time should the General Contractor be dissatisfied with the performance of clean-up responsibilities, he may elect, after proper notification, to undertake this operation and back charge this Subcontractor accordingly.
- I. All equipment shall be thoroughly cleaned and left in a satisfactory condition for proper operation at project completion.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3.17 DISINFECTION OF WATER SYSTEMS - INTERIOR AND EXTERIOR

- A. Water piping systems shall be thoroughly disinfected with a solution containing no less than 50 parts per million of available chlorine. Chlorinating materials shall be either liquid chlorine or sodium hypochlorite solution, and shall be introduced into the system and drawn to all points in the system. Disinfection solution shall be allowed to remain in system for 24 hours. During this time, valves and faucets shall be opened and closed several times. After disinfection, solution shall be flushed from the system with clear water until residual chlorine content is no greater than 0.2 parts per million.
 - 1. Notify all parties 48 hours prior to cleaning system.
 - 2. Bypass all building filters.
 - 3. Perform chlorination prior to heating the domestic hot water system. Run circulation pumps on the domestic HW system.
 - 4. Provide advance notice to all trades prior to procedure. Post warning signs throughout the job site.
 - 5. Collect samples randomly and at end user points.
- B. Work shall be supervised by Owner and performed by approved chemical testing laboratory and results sent to the Architect or Architect's Representative for verification.
- C. Testing laboratory shall submit a summary of test procedure for approval prior to any work performed. Subcontractor shall provide valves required to disinfect water supply system in part as required by phasing of construction and to provide isolating valves and draw-off valves for proper containment, phasing and flushing.

3.18 TESTING AND ADJUSTING – GENERAL

- A. Scope:
 - 1. Test and adjust plumbing systems as specified and as required by Code and Contract Documents.
 - 2. Testing, balancing and adjusting shall in no way relieve guarantee requirements.
 - 3. Provide services of qualified personnel, equipment and apparatus required to perform tests.
 - 4. All systems shall be thoroughly adjusted for perfect intended operation. All mechanical equipment shall be adjusted for flow, temperature, etc. of fluid. The entire hot water circulation system shall be thoroughly balanced so hot water draw from fixtures shall be as quickly available as possible. Pumps, relief valves and pressure reducing valves shall be adjusted as required. Submit in writing to the Engineer upon completion of this work that it is complete and ready for use.
- B. Before date of acceptance, furnish Architect with Certificates of Testing and Inspection indicating approval of Authorities Having Jurisdiction and conformance with requirements of Contract Documents.
- C. General:
 - 1. Submit proposed test procedures, recording forms and test equipment for review before testing.
 - 2. Notify Architect and Authorities involved at least 48 hours before testing and inspection.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. Do not paint, cover or conceal work before testing, inspecting and obtaining approval; this includes backfilling and application of insulation.
 4. Costs of repairs and restoration of work of other trades and of existing building surfaces or material damaged during cleaning or testing shall be borne by trade performing cleaning or testing.
- D. No tests shall be started until systems have been cleaned as described under "Cleaning" paragraph. Provide temporary piping and connections for testing, flushing or draining systems to be tested.
1. Repair or replace leaks, damage and defects that result from tests to like-new condition. Remove and replace defective materials with acceptable materials.
 2. Piping and joints shall be made tight without caulking. Continue tests until systems operate without adjustments and repair to equipment or piping.
 3. Provide testing instruments, force pumps, gauges, equipment and labor necessary to conduct tests. Instruments used for testing and balancing shall have been calibrated within six months before balancing. Instrument calibration shall be certified.'
 4. Submit six (6) copies of complete testing and balancing report to Architect for review.
- E. Final test shall be made after vertical and horizontal pipes and roughing-in have been run and before sewer or fixture connection is made.
1. After soil and waste lines, etc. have been installed outlets shall be temporarily plugged up.
 2. Fill pipes with water to top of vertical lines and allow them to remain so filled for 24 hours.
 3. Retesting after leaks are repaired shall be at no additional cost.
- F. Pressurized Piping Systems:
1. Leak tests shall be conducted in accordance with ANSI applicable Codes and as specified herein.
 2. Before piping of various systems has been covered or furred-in, piping systems shall be tested tight for 1 hour under hydrostatic pressure, 1-1/2 times systems working pressures, but not greater than test pressure of 150 psig.
 3. Tests shall be witnessed by Architect and pronounced satisfactory before pressure is removed or any water drained off.
 4. Equipment shall be valved off or removed during test if equipment pressure rating is less than test pressure.
 5. Retest systems after leaks are repaired within Contract Price.
- G. Gravity Systems: Test under water pressure at heads specified in Plumbing Codes. Fill pipe lines with water to top of 5 foot vertical section of pipe or to level of top of vent pipe; maintain head pressure for 30 minutes.
- H. Potable Water System Test:
1. Certification of the potable water system integrity shall be required where separate systems of potable and non-potable water are provided to supply plumbing fixtures.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2. Fill potable water system to capacity with clean clear water. Introduce water at top of piping system (Hot and Cold). During filling, introduce green food coloring dye into piping system. A floor-by-floor survey shall be conducted. Operate each outlet (Hot and Cold) connected to potable water system until coloring has been observed. A method of maintaining the level of water and coloring shall be employed in order to make up the drawn off amounts. A survey sheet shall indicate each floor and the room number sequentially.
 3. This survey is required to be performed after all pressure testing and flushing of the piping system, but before sterilization. Further, it is required that all fixtures connected to the potable water system be installed prior to the test.
- I. Prove capacity and performance of each piece of equipment by field tests as specified herein various paragraphs. Equipment and instruments required for tests, as well as additional thermowells or gauge connections shall be installed at no additional cost to Owner.
 1. Qualified Representative of Equipment Manufacturer shall be present. Architect may witness tests, if he so desires.
 2. Test requirements shall include, but not be limited to, the following:
 - a. Domestic water pumps.
 - b. Sump pumps.
 - c. Sewage ejectors.
 - J. Examine PART 2 for supplemental testing requirements.

3.19 TESTING: PIPING SYSTEMS

- A. General:
 1. Piping systems shall be subjected to testing water or air as noted and shall hold tight at the pressure head stated for the time interval required without adding air or water. While any system is being tested, required head or pressure shall be maintained until joints are inspected.
 2. Tests shall be witnessed by inspector having jurisdiction, and the Architect within 48 hour notice, given these Authorities.
 3. Equipment, material, and labor required for testing of various systems, or part thereof, shall be provided by Plumbing Contractor.
- B. Sanitary, Waste System:
 1. Water test shall be applied to drainage system either in their entirety or in sections as required, after rough piping has been installed.
 2. If applied to entire system, openings in piping system shall be tightly closed, except the highest opening and system filled with water to point of overflow.
 3. If system is tested in sections, each opening shall be tightly closed except highest opening in the section under test and each section shall be filled with water but no section shall be tested with less than a 10' head of water.
 4. In testing successive sections, at least upper 10' of next preceding section shall be tested so that no joint of piping in building, except the uppermost 10' of the system shall be submitted to a test of less than a 10' head of water.
 5. Water shall be kept in system for at least 15 minutes before inspection starts; the system shall then be made tight at all points.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Points of drainage systems tested with air instead of water shall be tested by attaching an air compressor testing apparatus to suitable opening and, after closing all other inlets or outlets, forcing air into systems until a uniform gauge pressure of 5 psi or sufficient pressure to balance a column of mercury 10" high. Pressure shall be held without introduction of additional air for a period of at least 15 minutes.

- D. All new sanitary, waste and vent piping installed under the floor slab, in the area of work, shall be video camera scoped and recorded upon completion and prior to final acceptance. Any debris found in underground piping shall be flushed and removed as part of this Contract. All video recordings and results shall be submitted to the Owner as part of the closeout documents.

- E. Interior Water Piping System: Upon completion of water supply systems or section thereof, as required, system shall be tested and proved tight under a water pressure of 150 psi. Gauge shall be located on lowest new floor and pressure shall hold for a period of one (1) hours without introducing additional water. Water used for testing shall be from a potable source of supply.

- F. Testing Summary:
 - 1. W&V – with water to a 10 foot head for 30 minutes.
 - 2. Water – with potable water to 150 psi for one hour.

- G. Defective Work: If inspection or tests show defects, such defective work or material shall be replaced and inspection and tests shall be repeated. Repairs to piping shall be made with new material. No caulking or screwed joints or holes shall be acceptable.

- H. Additional Tests:
 - 1. Provide additional tests such as smoke pressure tests as required by regulations or as directed by Authorities making the inspection.
 - 2. Provide for any repeated test as directed by the Architect, to make all systems tight as required.
 - 3. Visual inspections of joints and valves shall be made as directed by the Architect.

END OF SECTION 22 00 00

**RESTROOM &
SUPPORT
BUILDING**

DIVISION 26 00 00
ELECTRICAL

ACTIVITAS

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

TABLE OF CONTENTS

SECTION 26 00 00

ELECTRICAL

PART 1 - GENERAL 1

1.1 GENERAL PROVISIONS..... 1

1.2 SCOPE OF WORK..... 1

1.3 RELATED WORK..... 1

1.4 PRODUCTS FURNISHED, BUT NOT INSTALLED UNDER THIS SECTION..... 2

1.5 DEFINITIONS 2

1.6 CODES, REFERENCES AND PERMITS..... 3

1.7 GENERAL REQUIREMENTS..... 4

1.8 MATERIAL AND EQUIPMENT STANDARDS..... 4

1.9 SUBMITTALS 4

1.10 OPERATION AND MAINTENANCE DATA 8

1.11 RECORD DRAWINGS..... 9

1.12 WARRANTIES..... 9

1.13 COORDINATION 10

1.14 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS 10

1.15 INSPECTION OF SITE CONDITIONS..... 11

1.16 SURVEY AND MEASUREMENTS 11

1.17 DELIVERY, STORAGE AND HANDLING 11

1.18 PROTECTION OF WORK AND PROPERTY..... 12

1.19 SUPERVISION 12

1.20 SAFETY PRECAUTIONS 12

1.21 SCHEDULE..... 12

1.22 HOISTING, SCAFFOLDING AND PLANKING 12

1.23 CUTTING AND PATCHING 12

1.24 SLEEVES, INSERTS AND ANCHOR BOLTS 13

1.25 SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS..... 13

1.26 HAZARDOUS MATERIALS..... 14

1.27 ACCESSIBILITY..... 14

1.28 PROJECT CLOSEOUT 14

PART 2 - PRODUCTS..... 17

2.0 NOT USED..... 17

2.1 IDENTIFICATION..... 17

2.2 RACEWAYS AND CONDUIT..... 17

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

| | | |
|--------------------------|----------------------------------|----|
| 2.3 | WIRE AND CABLE (600V) | 18 |
| 2.4 | WIRING DEVICES AND PLATES | 19 |
| 2.5 | OUTLET BOXES | 20 |
| 2.6 | JUNCTION AND PULL BOXES | 20 |
| 2.7 | SAFETY DISCONNECT SWITCHES | 22 |
| 2.8 | PANELBOARDS | 22 |
| 2.9 | DRY TYPE TRANSFORMERS | 24 |
| 2.10 | LIGHTING FIXTURES | 25 |
| 2.11 | HANDHOLES | 25 |
| PART 3 - EXECUTION | | 26 |
| 3.0 | DEMOLITION | 26 |
| 3.1 | IDENTIFICATION | 28 |
| 3.2 | RACEWAYS AND CONDUIT | 28 |
| 3.3 | WIRE AND CABLE (600V) | 30 |
| 3.4 | WIRING DEVICES AND PLATES | 31 |
| 3.5 | OUTLET BOXES | 31 |
| 3.6 | JUNCTION AND PULL BOXES | 31 |
| 3.7 | SAFETY DISCONNECT SWITCHES | 32 |
| 3.8 | PANELBOARDS | 32 |
| 3.9 | DRY TYPE TRANSFORMERS | 33 |
| 3.10 | HANDHOLES | 33 |
| 3.11 | POWER SYSTEM STUDIES | 34 |
| 3.12 | BASIC ACCEPTANCE TESTS | 35 |

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

SECTION 26 00 00

ELECTRICAL

PART 1 - GENERAL

1.0 GENERAL PROVISIONS

- A. The GENERAL REQUIREMENTS, DIVISION 01, and BIDDING AND CONTRACT REQUIREMENTS, DIVISION 00, are hereby made a part of this Specification Section.
- B. Examine all Drawings and all Sections of the Specifications and requirements and provisions affecting the work of this Section.

1.1 SCOPE OF WORK

- A. This project includes new athletic field at the West Running Brook School located in the Town of Derry, New Hampshire.
- B. The work under this Section shall include the furnishing of all materials, labor, equipment and supplies and the performance of all operations to provide complete working systems, in general, to include the following items:
 - 1. Identification
 - 2. Raceways and Conduit
 - 3. Wire and Cable (600V)
 - 4. Wiring Devices and Plates
 - 5. Outlet Boxes
 - 6. Junction Boxes, Pull Boxes and Wireways
 - 7. Safety Disconnect Switches
 - 8. Panelboards
 - 9. Dry Type Transformers
 - 10. Fuses
 - 11. Lamps and Light Fixtures
 - 12. Lighting Control System
 - 13. Underground Ductbank / Precast Handholes
 - 14. Sleeving
 - 15. Fire Seal and Fireproof Sealant
 - 16. Supervision and Approval
 - 17. Electrical Connections to Equipment provided under other Sections or by Owner.
 - 18. Short Circuit Protection and Coordination Study
 - 19. Testing
 - 20. Operating and maintenance instructions and manuals
 - 21. Shop drawings
 - 22. Record (as-built) drawings
- C. Work of this Section is generally shown on the Electrical Drawings.

1.2 RELATED WORK

- A. Principal classes of Work related to the Work of this Section are listed in the Specification Table of Contents, and are specified to be performed under the indicated Sections of the

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

Specifications. Refer to the indicated Sections for description of the extent and nature of the indicated Work, and for coordination with related trades. This listing may not include all related Work items. It is the responsibility of the Contractor to coordinate and schedule the Work of this Section with that of all other trades.

- B. The following work is not included in this section and will be provided under other sections:
1. Temporary light, power, water, heat, gas and sanitary facilities for use during construction and testing. Refer to Division 01, General Conditions.
 2. Excavation and backfill.
 3. Concrete work including concrete housekeeping pads and blocks for vibrating and rotating equipment, and ductbank envelopes.
 4. Flashing of roof and wall penetrations.
 5. Painting, except as specified herein.

1.3 PRODUCTS FURNISHED, BUT NOT INSTALLED UNDER THIS SECTION

- A. Furnish the following items for installation under other sections and provide wiring and connections as required:
1. Anchor bolts for poured-in-place light standard bases (furnish templates for placement) for installation under Division 03.
 2. Pre-cast handholes for installation under Division 02.
 3. Pipe sleeves for placement into formwork by the General Contractor.

1.4 DEFINITIONS

- A. As used in this Section, the following items are understood to have the following meaning:
1. **"Contractor or Subcontractor"**, unless otherwise qualified, shall mean the installer of the work specified under this Section.
 2. **"Furnish"** shall mean purchase and deliver to the project site, complete with every necessary appurtenance.
 3. **"Install"** shall mean unload at the delivery point at the site and perform all work necessary to establish secure mounting and proper operation at the proper location in the project.
 4. **"Provide"** shall mean "Furnish" and "Install".
 5. **"Work"** shall mean all labor, materials, equipment, apparatus, controls, accessories and all other items required for a proper and complete installation.
 6. **"Concealed"** shall mean hidden from sight in chases, furred-in spaces, shafts, hung ceilings, embedded in construction or in a crawl space. Areas to be concealed as part of tenant alterations to the building shall also be considered in this definition.
 7. **"Exposed"** shall mean not installed underground or concealed as defined above.
 8. **"Furnished by Others"** shall mean materials or equipment purchased under other sections of the general contract and installed by this section of the specifications by this trade Contractor.
 9. **"Owners Representative"** shall be the party responsible to make decisions regarding all contractual obligations in reference to the Scope of Work for the Owner.
 10. **"Date of Substantial Completion"** shall indicate the date where the work has been formally accepted as evidenced by completed final punch list or where the work has reached the stage that the Owner obtains beneficial use and commences utilization of the installed systems for business or occupancy purposes. The

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

GENERAL REQUIREMENTS, DIVISION 01, shall supersede this definition where specifically defined.

1.5 CODES, REFERENCES AND PERMITS

- A. Materials, installation of systems and equipment provided under this section shall be done in strict accordance with the Department of Public Safety, Department of Environmental Protection, State Building Code and any other Codes and Regulations having jurisdiction including but not limited to:
1. All Applicable NFPA Standards
 2. National Electrical Code (NEC)
 3. Occupational Safety and Health Administration (OSHA)
 4. State and Local Building Codes
 5. Underwriters' Laboratories, Inc. (UL)
- B. Unless otherwise specified or indicated, materials, workmanship and equipment performance shall conform with the latest governing edition of the following standards, codes, specifications, requirements, and regulations, except when more rigid requirements are specified or are required by applicable codes but not limited to:
1. American National Standards Institute (ANSI)
 2. American Society of Mechanical Engineers (ASME)
 3. American Society of Testing and Materials (ASTM)
 4. Certified Ballast Manufacturers (CME)
 5. Illuminating Engineering Society (IES)
 6. Institute of Electrical and Electronics Engineers (IEEE)
 7. Insulated Cable Engineers Association (ICEA)
 8. National Electrical Contractors Association (NECA)
 9. National Electric Manufacturers Association (NEMA)
 10. Thermal Insulation Manufacturers Association (TIMA)
- C. Codes, laws and standards provide a basis for the minimum installation criteria acceptable. The drawings and specifications illustrate the scope required for this project, which may exceed minimum codes, laws and standards.
- D. Give all notices, file all plans, obtain all permits and licenses, and obtain all necessary approvals from authorities having jurisdiction. Deliver all certificates of inspection to the authorities having jurisdiction. No work shall be covered before examination and approval by the Owner's Representative, inspectors, and authorities having jurisdiction. Replace imperfect or condemned work to conform to requirements, satisfactory to Owner's Representative, and without extra cost to the Owner. If work is covered before inspection and approval, this Contractor shall pay costs of uncovering and reinstalling the covering, whether it meets contract requirements or not.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.6 GENERAL REQUIREMENTS

- A. Nameplates
 - 1. Each major component of equipment shall have the manufacturer's name, address, type or style, model or serial number, and catalog number on a plate secured to the equipment.
- B. Equipment Guards
 - 1. Belts, pulleys, chains, gears, couplings, projecting setscrews, keys, and other rotating parts so located that any person may come in close proximity thereto shall be completely enclosed or guarded. High-temperature equipment and piping so located as to endanger personnel or create a fire hazard shall be guarded or covered with insulation of type specified for service.

1.7 MATERIAL AND EQUIPMENT STANDARDS

- A. Where equipment or materials are specified with the name of a manufacturer, such specification shall be deemed to be used for the purpose of establishing a standard for that particular item. No equipment or material shall be used unless previously approved by the Owner's Representative.
- B. Substitutions may be offered for review provided the material, equipment or process offered for consideration is equal in every respect to that indicated or specified. The request for each substitution must be accompanied by complete specifications together with drawings or samples to properly appraise the materials, equipment or process. The Contractor shall highlight and list all applicable specification requirements which the substituted material deviates from.
- C. If a substitution of materials or equipment in whole or in part is made, this Contractor shall bear the cost of any changes necessitated by any other trade as a result of said substitution.
- D. All materials, equipment and accessories provided under this section shall be new and unused products of recognized manufacturers as approved.

1.8 SUBMITTALS

- A. Conform to the requirements of Division 01, General Conditions, for schedule and form of all submittals unless specifically noted otherwise in this section. Coordinate this submittal with submittals for all other finishes. Shop drawings and design layouts shall be prepared by licensed installing Contractor s and shall note the name(s), license number(s) and license expiration date(s) of the Contractor (s) installing electrical systems.
- B. Definitions:
 - 1. Shop Drawings are information prepared by the Contractor to illustrate portions of the work in more detail than indicated in the Contract Documents.
 - 2. Acceptable Manufacturers: The mechanical design for each product is based on the single manufacturer listed in the schedule or shown on the drawings. In Part 2 of the specifications, certain Alternate Manufacturers are listed as being

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

acceptable. In addition, the MATERIAL AND EQUIPMENT STANDARDS paragraph potentially allows for substitutions as being acceptable. These are acceptable only if, as a minimum, they:

- a. Meet all performance criteria listed in the schedules and outlined in the specifications. For example, to be acceptable, an emergency generator must deliver equal kW / kVA at equal or greater efficiency using equal or less fuel as the emergency generator listed in the schedules.
- b. Fit within the available space it was designed for, including space for maintenance and component removal, with no modification to either the space or the product. Clearances to walls, ceilings, and other equipment will be at least equal to those shown on the design drawings. The fact that a manufacturer's name appears as acceptable shall not be taken to mean the Engineer has determined that the manufacturer's products will fit within the available space – this determination is solely the responsibility of the Contractor.
- c. Products must adhere to all architectural considerations including, but not limited to; being of the same color as the product scheduled or specified, fitting within the architectural enclosures and details, and for lighting – being the same size and of the same physical appearance as scheduled or specified products.

C. Submittal Procedures, Format and Requirements

1. Review submittal packages for compliance with Contract Documents and then submit to Owner's Representative for review. Submit enough sets of shop drawings such that, after review, two sets will be kept by the reviewer, with only the remaining sets returned with reviewer's marks and comments.
2. Each Shop Drawing shall indicate in title block, and each Product Data package shall indicate on cover sheet, the following information:
 - a. Title
 - b. Equipment number
 - c. Name and location of project
 - d. Names of Owner, Engineer and Seller
 - e. Names of manufacturers, suppliers, vendors, etc.
 - f. Date of submittal
 - g. Whether original submittal or resubmitted
3. Shop Drawings showing manufacturer's product data shall contain detailed dimensional drawings (minimum 1/4" – 1" scale) including plans and sections (where physical clearance could be an issue). Provide larger scale details as necessary.
4. Submit accurate and complete description of materials of construction, manufacturer's published performance characteristics, sizes, weights, capacity ratings (performance data, alone, is not acceptable), electrical requirements, starting characteristics, wiring diagrams, and acoustical performance for complete assemblies. Drawings shall clearly indicate location (terminal block or wire number), voltage and function for all field terminations, and other information necessary to demonstrate compliance with all requirements of Contract Documents.
5. Provide Shop Drawings showing details of piping connections to all equipment. If connection details are not submitted and connections are found to be installed incorrectly, this Contractor shall reinstall them within the original contract price.
6. Provide complete data for all auxiliary services and utilities required by submitted equipment. This shall include fuel, cooling and exhaust requirements and points of connections.
7. Provide a complete description of all controls and instrumentation required including electrical power connection drawing for all components and

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- interconnection wiring to starters, detailed information on starters, control diagrams, termination diagrams, and all control interfaces with a central control system.
8. Provide installation and erection information including; lifting requirements, and any special rigging or installation requirements for all equipment.
 9. The Owner's Representative shall approve all materials before commitment for materials is made.
- D. Specifications and Schedule Compliance Statement
1. The manufacturer shall submit a point by point statement of compliance with each specification criteria listed in each paragraph for those submittals listed in Paragraph E: Product Data that are noted with an asterisk (*).
 2. The statement of compliance shall consist of a list of all paragraphs (line by line) identified in Part 2 and applicable Part 3 of the specification for which the submitted product in the opinion of the manufacturer complies, deviates, or does not meet.
 3. Where the proposed submittal complies fully, the word "comply" shall be placed opposite the paragraph number.
 4. Where the proposed submittal does not comply, or accomplishes the stated function in a manner different from that described, a full description of the deviation shall be provided.
 5. Verify each field of the associated schedule where associated technical data is presented on the drawings. Where the submitted material does not "comply" provide the value the submitted equipment will achieve based upon the specified conditions.
 6. Where a full description of a deviation is not provided, it shall be assumed that the proposed system does not comply with the paragraph in question and the product will be rejected.
 7. Submissions which do not include a point by point statement of compliance as specified shall be disapproved.
- E. Product Data: Submit complete manufacturer's product description and technical information including:
1. Raceways and Conduit
 2. Wiring Devices and Plates
 3. Safety Disconnect Switches
 4. Panelboards
 5. Dry Type Transformers
 6. Light Fixtures
 7. Handholes
- F. Submit shop drawings and product data grouped to include complete submittals of related systems, products and accessories in a single submittal.
1. Do not submit multiple product information in a single bound manual.
 2. Three-ring binders shall not be accepted.
- G. Deviations:
1. Concerning deviations other than substitutions, proposed deviations from Contract Documents shall be requested individually in writing whether deviations result from field conditions, standard shop practice, or other cause. Submit letter with transmittal of Shop Drawings which flags the deviation to the attention of the Owner's Representative.
 2. Without letters flagging the deviation to the Owner's Representative, it is possible that the Engineer may not notice such deviation or may not realize its

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

ramifications. Therefore, if such letters are not submitted to the Owner's Representative, the Seller shall hold the Engineers, his consultants and the Owner harmless for any and all adverse consequences resulting from the deviations being implemented. This shall apply regardless of whether the Engineer has reviewed or approved shop drawings containing the deviation, and will be strictly enforced.

3. Approval of proposed deviations, if any, will be made at discretion of Engineer.
- H. Schedule: Incorporate shop drawing review period into construction schedule so that Work is not delayed. This Contractor shall assume full responsibility for delays caused by not incorporating the following shop drawing review time requirements into his project schedule. Allow at least 10 working days, exclusive of transmittal time, for review each time shop drawing is submitted or resubmitted.
- I. Responsibility
1. Intent of Submittal review is to check for capacity, rating, and certain construction features. The Contractor shall ensure that work meets requirements of Contract Documents regarding information that pertains to fabrication processes or means, methods, techniques, sequences and procedures of construction; and for coordination of work of this and other Sections. Work shall comply with approved submittals to extent that they agree with Contract Documents. Submittal review shall not diminish responsibility under this Contract for dimensional coordination, quantities, installation, wiring, supports and access for service, nor the shop drawing errors or deviations from requirements of Contract Documents. The Engineer's noting of some errors while overlooking others will not excuse the Contractor from proceeding in error. Contract Documents requirements are not limited, waived nor superseded in any way by review.
 2. Inform Contractor, manufacturers, suppliers, etc. of scope and limited nature of review process and enforce compliance with contract documents.
- J. In the event that the Contractor fails to provide Shop Drawings for any of the products specified herein:
1. The Contractor shall furnish and install all materials and equipment herein specified in complete accordance with these Specifications.
 2. If the Contractor furnishes and installs material and/or equipment that is not in complete accordance with these Specifications, he shall be responsible for the removal of this material and/or equipment. He shall also be responsible for the replacement of this material and/or equipment with material and/or equipment that is in complete accordance with these Specifications, at the direction of the Owner's Representative.
 3. Removal and replacement of materials and/or equipment that is not in complete compliance with these Specifications shall be done at no extra cost to the Owner.
 4. Removal and replacement of materials and/or equipment that is not in complete compliance with these Specifications shall not be allowed as a basis for a claim of delay of completion of the Work.
- K. Mark dimensions and values in units to match those specified.
- L. Submit Material Safety Data Sheets (MSD) on each applicable product with submittal.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.9 OPERATION AND MAINTENANCE DATA

- A. Commence preparation of the Operating and Maintenance (O&M) manuals immediately upon receipt of "Approved" or "Approved as Noted" shop drawings and submit each section within one month. The final submission shall be no later than two months prior to the projected date of Substantial Completion of the Project.
- B. Each O&M document shall include the manufacturer's web address for equipment specific O&M information for Internet access by the Owner.
- C. The manual shall consist of three (3) sets of manuals and include three (3) sets of CDs, which shall contain the scanned content of the entire manual. The manual shall highlight the actual equipment used and not be a master catalog of all similar products of the manufacturer. The manual shall be submitted for review prior to creation of the CDs.
- D. The Manual shall contain the following:
 - 1. Operations Manual
 - a. Systems description including all relevant information needed for day-to-day operations and management including start-up and shut-down instructions.
 - b. Wiring diagrams, schematics, logic diagrams and sequence of operations that accurately depict the controls system.
 - c. Depiction of each interface screen where programmable logic and visual displays are provided. Descriptors shall be provided to define displayed data, alarms, etc.
 - d. A single sheet (for ease of removal) of all access codes and passwords necessary to access all levels of control and programming.
 - e. Trouble shooting guide defining common alarms/problems with possible cause and effect.
 - 2. Maintenance Manual
 - a. Define all maintenance activities required to ensure system operation within manufacturers specified parameters. Provide table of all required activities plotted vs. interval with adequate fill-in-space for "activity completion date" and "comments". Where multiple instrument readings are required, provide data sheet formatted to accommodate activity.
 - b. Define recommended spare parts inventory with part numbers and source defined for ordering by the Owner. Identify lead time on all parts, source location and cost.
 - c. Provide copy of all warranty information with associated date of substantial completion (commencement of warranty) and end date of coverage. Define all components/subsystems specifically included and excluded.
 - 3. Provide O&M manuals for each of the following:
 - a. Sports Lighting Control System

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

1.10 RECORD DRAWINGS

- A. Refer to DIVISION 01, General Conditions, for record drawings and procedures to be provided under this section, unless specifically noted otherwise in this section.
- B. Record Drawings (red-line drawings) will be updated by this Contractor daily for review with the monthly requisition. The record drawing shall be an accurate depiction of the systems as completed, including dimensions (vertical/horizontal) of concealed components off fixed building elements.
- C. The Electrical Foreman shall maintain complete and separate set of prints of Contract Drawings at job site at all times and shall record work completed and all changes from original Contract Drawings clearly and accurately including work installed as a modification or addition to the original design.
- D. At completion of work the Electrical Contractor shall prepare a complete set of record drawings on AutoCAD showing all systems as actually installed. The background AutoCAD files will be made available for the Contractor's copying, at his expense, to serve as backgrounds for the drawings. The Electrical Contractor shall transfer changes from field drawings onto AutoCAD drawings and submit copy of files and three sets of prints to Owner's Representative for comments as to compliance with this section. CADD layering as established by the design team shall be maintained with any and all changes done by the Contractor.
- E. The Engineer are not granting to the Contractor any ownership or property interest in the CADD Drawings by the delivery of the CADD Disks to the Contractor. The Contractor's rights to use the CADD disks and the CADD Drawings are limited to use for the sole purpose of assisting in the Contractor's performance of its contractual obligations under its contract with respect to the Project. The Engineer are granting no further rights. Any reuse or other use by the Contractor will be at the Contractor's sole risk and without liability to the Engineer. The Contractor hereby waives and releases any losses, claims, damages, liabilities of any nature whatsoever, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor. The Contractor, to the maximum extent permitted by law, hereby agrees to indemnify, defend and hold the Engineer harmless from all loses, claims, damages, liabilities, and costs (including attorney fees) arising out of, resulting from, or otherwise related to the use of the CADD Disks and CADD Drawings by the Contractor.
- F. Record Drawings, shall show "as-built" condition of details, sections, riser diagrams, control changes and corrections to schedules. Schedules shall show actual manufacturer and model numbers of final equipment installation.
- G. The Electrical Contractor shall submit the record set for approval by the engineer a minimum of four weeks prior to seeking the permanent certificate of occupancy.

1.11 WARRANTIES

- A. Submit manufacturer's standard replacement warranties for material and equipment furnished under this Section. Such warranties shall be in addition to and not in lieu of all liabilities which the manufacturer and the Electrical Contractor may have by law or by provisions of the Contract Documents.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. All materials, equipment and work furnished under this Section shall be guaranteed against all defects in materials and workmanship for a minimum period of one-year (1) commencing with the Date of Substantial Completion. Where individual equipment sections specify longer warranties, provide the longer warranty. Any failure due to defective material, equipment or workmanship which may develop, shall be corrected at no expense to the Owner including all damage to areas, materials and other systems resulting from such failures.
- C. Guarantee that all elements of each system meet the specified performance requirements as set forth herein or as indicated on the Drawings.
- D. Upon receipt of notice from the Owner of the failure of any part of the systems during the warranty period, the affected parts shall be replaced. Any equipment requiring excessive service shall be considered defective and shall be replaced.

1.12 COORDINATION

- A. Refer to Division 01, General Conditions, for coordination requirements applicable to this section, unless specifically noted otherwise in this section.
- B. Materials and apparatus shall be installed as fast as conditions of the building will permit and must be installed promptly when and as required.
- C. Confer with all other trades relative to location of all apparatus and equipment to be installed and select locations so as not to conflict with work of other Sections. Any conflicts shall be referred immediately to the Owner's Representative for decision to prevent delay in installation of work. All work and materials placed in violation of this clause shall be readjusted to the Owner's Representative's satisfaction at no expense to the Owner.
- D. Where work of this section will be installed in close proximity to work of other sections or where there is evidence that the work of this section may interfere with work of other sections, assist in working out space conditions to make satisfactory adjustment. Prepare and submit for approval 3/8" scale or larger working drawings and sections, clearly showing how the work is to be installed in relation to the work of other sections. If the work of this section is installed before coordinating with other trades or so as to cause interference with work of other trades, make changes necessary to protect conditions without extra charge.
- E. Keep fully informed as to the shape, size and position of all openings required for all apparatus, conduit, cable, sleeves, etc., and give information in advance to allow construction of required openings. Furnish all sleeves, pockets, supports and incidentals, and coordinate with the General Contractor for the proper setting of same.
- F. Make reasonable modifications in the work as required by structural interferences, or by interference with work of other trades, or for proper execution of the work without extra charge.

1.13 INTERPRETATION OF DRAWINGS AND SPECIFICATIONS

- A. It is the intention of the Specifications and Drawings to call for complete, finished work, tested and ready for continuous operation. Any apparatus, appliance, material or work not shown on the Drawings, but mentioned in the Specifications or vice-versa, or any incidental accessories necessary to make the work complete in all respects and ready for

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

operation, even if not particularly specified, shall be provided by this Contractor without additional expense to the Owner.

- B. The Drawings are generally diagrammatic. The locations of all items that are not definitely fixed by dimensions are approximate only. The exact locations must be determined at the project and shall have the approval of the Owner's Representative before being installed. This Contractor shall follow Drawings, including his shop drawings, in laying out work and shall check the Drawings of other trades to verify spaces in which work will be installed. Maintain maximum headroom and space conditions. Where space conditions appear inadequate, notify the Owner's Representative before proceeding with the installation. This Contractor shall, without extra charge, make reasonable modifications in the layout as needed to prevent conflict with work of other trades or for proper execution of the work.
- C. Any requests for information (RFI) for resolving an apparent conflict or unclarity, or a request for additional detail, shall include a sketch or equivalent description of Contractor's proposed solution.
- D. Size of conduits, cable trays, raceways and methods of running them are shown, but it is not intended to show every offset and fitting, nor every structural difficulty that may be encountered. To carry out the true intent and purpose of the Drawings, all necessary parts to make complete approved working systems ready for use, shall be furnished without extra charge. All work shall be installed in an approved workmanlike manner.

1.14 INSPECTION OF SITE CONDITIONS

- A. Prior to submission of bid, visit the site and review the related construction documents to determine the conditions under which the Work has to be performed and send a report, in writing, to the Owner's Representative, noting any conditions which might adversely affect the Work of this Section of the Specifications.

1.15 SURVEY AND MEASUREMENTS

- A. Base all required measurements, horizontal and vertical, from referenced points established WITH the Owner's Representative. The Electrical Contractor shall be responsible for correctly laying out the Work required under this Section of the Specifications.
- B. In the event of discrepancy between actual measurements and those indicated, notify the Owner's Representative in writing and do not proceed with the related work until instructions have been issued.

1.16 DELIVERY, STORAGE AND HANDLING

- A. No materials shall be delivered or stored on site until corresponding Shop Drawings have been approved.
- B. All manufactured materials shall be delivered to the site in original packages or containers bearing the manufacturer's labels and product identification.
- C. Protect materials against dampness. Store off floors, under cover and adequately protected from damage.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- D. Inspect all equipment and materials, upon receipt at the job site, for damage and conformance to approved shop drawings.

1.17 PROTECTION OF WORK AND PROPERTY

- A. This Contractor shall be responsible for the care and protection of all work included under this Section until the completion and final acceptance of this Contract.
- B. Protect all equipment and materials from damage from all causes including, but not limited to, fire, vandalism and theft. All materials and equipment damaged or stolen shall be repaired or replaced with equal material or equipment at no additional cost to the Owner.
- C. Protect all equipment, outlets and openings with temporary plugs, caps and covers. Protect work and materials of other trades from damage that might be caused by work or workmen under this Section and make good damage thus caused.
- D. Damaged materials are to be removed from the site; no site storage of damaged materials will be allowed.

1.18 SUPERVISION

- A. Supply the service of a competent Supervisor with a minimum of 5 years of experience in Electrical construction supervision who shall be in charge of the Electrical work at the site.

1.19 SAFETY PRECAUTIONS

- A. Life safety and accident prevention shall be a primary consideration. Comply with all of the safety requirements of the Owner and OSHA throughout the entire construction period of the project.
- B. Furnish, place and maintain proper guards and any other necessary construction required to secure safety of life and/or property.

1.20 SCHEDULE

- A. Construct work in sequence under provisions of Division 01 and as coordinated with the Owner's Representative.

1.21 HOISTING, SCAFFOLDING AND PLANKING

- A. The work to be done under this Section of the Specifications shall include the furnishing, set-up and maintenance of all derricks, hoisting machinery, cranes, helicopters, scaffolds, staging and planking as required for the work.

1.22 CUTTING AND PATCHING

- A. Include all cutting, patching, and fireproofing necessary for the execution of the work of this Section.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Fit around, close up, repair, patch, and point around the work specified herein to match the existing adjacent surfaces and to the satisfaction of the Owner's Representative.
- C. Fill and patch all openings or holes left in the existing structures by the removal of existing equipment which is part of this Section of the Specifications.
- D. All of this work shall be carefully done by workmen qualified to do such work and with the proper and smallest tools applicable.
- E. Any cost caused by defective or ill-timed work required by this Section of the specifications shall be borne by this Contractor.
- F. When, in order to accommodate the work required under this Section of the specifications, finished materials of other trades must be cut or fitted, furnish the necessary drawings and information to the trades whose materials must be cut or fitted.

1.23 SLEEVES, INSERTS AND ANCHOR BOLTS

- A. Coordinate with other trades the location of and maintaining in proper positions, sleeves, inserts and anchor bolts to be supplied and/or set in place under this section of the specifications. In the event of incorrectly located preset sleeves, inserts and anchor bolts, etc., all required cutting and patching of finished work shall be done under this section of the specifications.
- B. All pipes passing through floors, walls, ceilings or partitions shall be provided with fire stopping to maintain the fire rating of the structure. All penetrations and associated fire stopping shall be installed in accordance with the fire stopping manufacturer's listed installation details. Provide sleeves for all penetrations where required by the listed detail, for the penetration of all mechanical room floors and where specifically required on the drawings.

1.24 SUPPLEMENTARY STEEL, CHANNELS AND SUPPORTS

- A. Provide all supplementary steel, factory fabricated channels and supports required for the proper installation, mounting and support of all Electrical equipment, piping, etc., required by the Specifications.
- B. Supplementary steel and factory fabricated channels shall be firmly connected to building construction in a manner approved by the Owner's Representative as shown on the drawings or herein specified.
- C. The type and size of the supporting channels and supplementary steel shall be determined by the Contractor and shall be of sufficient strength and size to allow only a minimum deflection in conformance with the manufacturer's requirements for loading.
- D. All supplementary steel and factory fabricated channels shall be installed in a neat and workmanlike manner parallel to the walls, floors and ceiling construction. All turns shall be made with 90 degree and 45 degree fittings, as required to suit the construction and installation conditions.
- E. All supplementary steel including factory fabricated channels, supports and fittings shall be galvanized steel, aluminum or stainless steel where exposed or subject to rust producing

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

atmosphere. Factory fabricated channels shall be manufactured by Unistrut, H-strut, Powerstrut or approved equal.

1.25 HAZARDOUS MATERIALS

- A. Removed batteries shall be recycled by a facility approved by the Owner's Representative. A uniform hazardous waste manifest shall be prepared for all disposals and returned with all applicable signoffs prior to application for final payment.
- B. Removed HID lamps shall be recycled by a facility approved by the Owner's Representative. A uniform hazardous waste manifest shall be prepared for all disposals and returned with all applicable signoffs prior to application for final payment.
- C. All ballasts in lighting fixtures to be disposed shall be verified to be PCB free. All ballasts manufactured prior to 1979 and not labeled as PCB free shall be considered to contain PCB's. Provide written verification to the Owner's Representative that confirms PCB free waste. Where PCB free waste cannot be verified, ballasts shall be recycled by a facility approved by the Owner's Representative, with PCB components eliminated by a high temperature incineration. A uniform hazardous waste manifest shall be prepared for all disposals and returned with all applicable signoffs prior to application for final payment. All handling shall conform to EPA requirements. Provide breakout cost for this scope.
- D. Where it has been identified that asbestos-containing material exists within the scope limits, refer to the Asbestos Abatement specification section for requirements.

1.26 ACCESSIBILITY

- A. All work provided under this Section of the Specification shall be installed so that parts requiring periodic inspection, maintenance and repair are accessible. Work of this trade shall not infringe upon clearances required by equipment of other trades, especially code required clearances to electrical gear. Minor deviations from the drawings may be made to accomplish this, but changes of substantial magnitude shall not be made prior to written approval from the Owner's Representative.

1.27 PROJECT CLOSEOUT

- A. Certificates Of Approval
 - 1. Upon completion of all work, provide certificates of inspections from the following equipment manufacturers stating that the authorized factory representatives have inspected and tested the operation of their respective equipment and found the equipment to be in satisfactory operating condition and installed per the manufacturers installation instructions and requirements.
 - a. Sports Lighting System
- B. Construction Observations By The Engineer
 - 1. The engineer shall make progress site visits during construction and one substantial completion (punch list) site visit for determining substantial completion.
 - 2. The Trade Contractors and the General Contractor are required to inspect their own work and make any corrections to the work to comply with the specifications and the contract documents. It is not the responsibility of the engineer to develop lists of incomplete work items.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. Progress Site Visits
 - a. The purpose of the progress site visit by the engineer is to observe if the work is proceeding in accordance with the contract documents.
 - b. The engineer will prepare a field report which will note in general the work completed since the last observation visit, work found not to be in accordance with the contract documents and work not corrected since the previous observation visit.

- C. Substantial Completion
 1. When the Contractor considers the Work under this Section is substantially complete, the Contractor shall submit written notice, through the General Contractor, with a detailed list of items remaining to be completed or corrected and a schedule of when each remaining work item will be completed. Should the engineer determine the list of remaining work does not constitute substantial completion the engineer will notify the Architect and/or Owner and he will not make a substantial completion site visit.
 2. The following items shall be completed prior to the written request for substantial completion site visit:
 - a. Certification of successful operation of all systems.
 - b. Training of the Owner's personnel in the operation of the systems.
 - c. Record Drawings in accordance with the contract specifications.
 - d. Operation and Maintenance manuals.
 - e. Testing reports.
 - f. Manufacturer's certificates of approvals.
 - g. Emergency contact list for reporting of malfunctioning equipment during the warrantee period.
 - h. Contractors Project Completion certificate.
 3. Should the Engineer, during the substantial completion visit, observe that the Work is substantially complete, s/he will provide a written listing of the observed deficiencies referred herein as the Punch List. The Punch List will provide for a place for the Contractor and general Contractor to sign off and date each item individually indicating that the observed deficiency item has been corrected.
 4. Should the Engineer, during the substantial completion site visit, observe that the Work is not substantially complete, s/he will provide, a written list of the major deficiencies and a reason for the work not being considered substantially complete.
 5. If the work is found not to be substantially complete then the engineer shall be reimbursed for his time to re-observe the work. A re-observation fee shall be charged to the Contractor through the contractual agreement for any further observations by the engineer.
 6. The Contractor shall remedy all deficiencies listed in the punch list within the time frame required by the contract.

- D. Engineers Construction Completion Certification
 1. Where required by the applicable code, the Engineers Construction Completion Certification will be issued by NV5 when all life safety and health related issues are complete, all required functional tests are complete and all reports are complete.

- E. Final Completion
 1. The following items shall be submitted prior to the written request for Final completion:

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- a. Revised Substantial Completion items to be resubmitted in accordance with the review process comments.
 - b. Warranties commencing the date of Substantial completion
 - c. Individual Signed and dated Punch List acknowledging completion of all punch list items
 2. When the Contractor considers all of the punch list work items complete, the Contractor shall submit written notice through the General Contractor that all Punch List items are complete and resolved and the work is ready for final observation site visit. The signature lines for completion of each punch list item shall be signed by the Contractor indicating the work is complete and signed by the General Contractor indicating s/he has inspected the work and found it to be complete. Should the Engineer find the work to be finally complete and all Punch List items are complete the Engineer will make a recommendation to the Architect or Owner. If the Engineer has found the punch list work to be incomplete during final inspection a written listing of the observed deficiencies will be prepared by the Engineer.
 3. If the work is not fully complete then the engineer shall be reimbursed for his time to re-observe the work. A re-observation fee shall be charged to the Contractor through the contractual agreement for any re-observations by the engineer.
- F. Re-observation Fees
1. The re-observation fee shall be \$1200.00 per visit.
- G. Contractor's Project Completion Certificate
1. Upon completion of work and prior to request for Certificate of Occupancy, each Trade Contractor and the General Contractor shall issue a certificate stating that work has been installed generally consistent with construction documents and all applicable codes. NV5 can furnish a blank Contractor's certificate form upon request. The certificate shall certify:
 - a. Execution of all work has been in accordance with the approved construction documents.
 - b. Execution and control of all methods of construction was in a safe and satisfactory manner in accordance with all applicable local, state and federal statutes and regulations.
 2. The certificate shall include the following information:
 - a. Project.
 - b. Permit Number.
 - c. Location.
 - d. Construction Documents.
 - e. Date on Plans and Specifications submitted for approval and issuance of the Building Permit.
 - f. Addendum(a) and Revision Dates.
 3. The certificate shall be signed by the Contractor and include the following:
 - a. Signature.
 - b. Date.
 - c. Company.
 - d. License Number.
 - e. License Expiration Date.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

PART 2 - PRODUCTS

2.0 NOT USED

2.1 IDENTIFICATION

A. Nameplates

1. Nameplates shall be laminated black Bakelite with minimum 1/4" high white recessed letters.
2. Nameplates shall be securely attached to the equipment. Utilize mechanical fasteners such as galvanized steel or brass screws for exterior applications. High strength adhesives or cements may be used for interior applications.

2.2 RACEWAYS AND CONDUIT

A. Rigid Galvanized Steel (RGS) Conduit

1. RGS shall be zinc-coated steel that conforms to ANSI C80.1, UL Specification No. 6 and Federal Specification WW-C-581e by Allied Tube and Conduit, Republic Steel, Wheatland Tube or approved equal.
2. RGS fittings shall be threaded. Split couplings or non-threaded fittings shall not be used.
3. Nipples and Close Nipples shall be RGS, length as noted or as required to conform to field conditions.

B. Polyvinyl Chloride (PVC) Non-metallic Conduit

1. PVC conduit and fittings shall be Schedule 40 or Schedule 80, 90°C. UL Listed equal to Carlon Plus 40 or Plus 80. PVC shall meet NEMA Specification TC-2, TC-3 and UL-651.
2. PVC, fittings and solvent cement shall be by single approved manufacturer.
3. PVC shall be sunlight resistant and listed for exposed or outdoor usage.

C. Fiberglass Reinforced Epoxy (FRE) Conduit Schedule 40 or Schedule 80 UL Listed equal to FRE Composites Inc. Type ID, SW and HW for below ground and above ground applications. FRE shall comply with UL 1684.

D. Miscellaneous Conduit Fittings

1. Elbows shall be standard radius unless noted otherwise. Where Large Radius elbows are specified, provide 48" radius unless noted otherwise.
2. Bushings shall be threaded pressed steel hot dipped galvanized with conduit end stop and integrally molded noncombustible phenolic insulated surface rated for 150°C.
3. Bonding bushings shall be threaded pressed steel hot dipped galvanized with conduit end stop and integrally molded noncombustible phenolic insulated surface rated for 150°C with a lay-in tin plated copper grounding lug.
4. Exposed conduit expansion fittings shall be hot-dipped galvanized malleable iron with external bonding jumper equal to O.Z./Gedney Type EX for RGS or Type TX for EMT (4" maximum expansion).
5. Provide water-tight gland sealing assemblies with pressure bushings equal to OZ/Gedney Type WSK for new cast-in-place installations or Type CSCM for retrofit

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

(core drilling of existing walls) as required for below grade wall and floor penetrations.

E. Flexible Metallic Conduit

1. Liquidtight Metal Conduit shall be UL Listed fabricated from a spiral wound strip of heavy gauge, corrosion resistant, hot dipped galvanized steel equal to Electri-flex Company Type LA. The jacket shall be flame retardant, sunlight resistant PVC extruded over the spiral wrap. Sizes through 1 ¼" shall have an integral copper bonding strip.
2. Liquidtight fittings shall be UL listed zinc plated insulated throat.
3. Flexible metal conduit shall be UL Listed non-jacketed steel fabricated from a spiral wound strip of heavy gauge, corrosion resistant, hot dipped galvanized steel equal to Electri-flex Company Type BR.

- F. Wireways shall be minimum 16-gauge steel with all straight runs having hinged spring-latched covers. Finish shall be painted over a corrosion resistant phosphate pretreatment to protect against corrosion. Interior parts shall be smooth and free of sharp edges and burrs. Provide wireway as identified on the drawings for NEMA 1, 3R or 12 service. Wireways shall be equal to Square D and UL Listed.

2.3 WIRE AND CABLE (600V)

- A. Provide single-conductor, annealed copper wire and cable with insulation rated for 600 V, of sizes specified and scheduled on Drawings, by General Electric, Southwire, Okonite or approved equal, for secondary service, feeders, branch and system wiring. Wire sizes shown and specified are American Wire Gauge for copper conductors.
- B. The use of aluminum conductors is not allowed.
- C. Wire #10 and larger shall be stranded; #12 and smaller shall be solid. Wire and cable shall have THWN-THHN or XHHW insulation for branch circuit and feeder conductors.
- D. Conductor Color-coding
1. Service entrance, branch circuit and feeder conductors shall be color-coded. Conductors #12 and #10 shall be colored with a factory applied solid or striped compound coating (black, red, blue, brown, orange or yellow). Neutrals and equipment grounds shall have solid compound or solid color coating (white, gray and green), except that neutrals with colored stripe shall be used where required by code. Phase conductors #8 and larger with stripes, bands or hash marks shall have background color other than white, green and gray.
 2. Alternative field-applied color coding methods may be used for wire #8 or larger, with color code as specified in other sections of this specification. Coloring shall be applied by the use of flame-retardant vinyl tape, equal to 3M Scotch 35.
- E. Splices and Terminations
1. Ampacity and temperature rating of splices and connectors shall be equal to or greater than those of associated wires and cables.
 2. Make splices in branch circuit or feeder wiring from #12 to #10 with UL-listed, solderless screw on connectors rated 600 V.
 3. Make splices in branch circuit or feeder wiring above #10 with UL-listed 90°C, 600V, compression butt splice barrel equal to Burndy YS-L HYLINK.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

4. Conductor terminations shall be standard bolt-on lugs with hex screws listed for attachment of copper wire and cable to panelboards, switchboards, disconnect switches and other electrical equipment.
 5. Make terminations for stranded conductors on screw terminals with UL Listed 105°C, 600V PVC insulated barrel compression locking fork tongue terminal equal to Burndy TP-LF VINYLUG.
 6. Make bus terminations for conductors #6 and larger with UL-listed 90°C, 600V, compression standard barrel length lugs equal to Burndy YA-L for conductor sizes to #4/0. Connectors for cable 250 KCMil and larger shall be with UL-listed 90°C, 600V, compression long barrel length two hole lugs equal to Burndy YA-2N. Lugs shall be high conductivity seamless copper electro-tin plated for corrosion protection.
- F. Wire management shall be provided by self-extinguishing self-locking nylon ties with -65 to 350°F. range for bundling conductors.
- G. Arc-proofing
1. Provide flexible, flame-retardant, organic-composition-coated elastomer arc-proofing tape equal to 3M Scotch 77 on power cable in manholes and handholes, suitable to withstand 200 A arc for 30 seconds. Tape shall be self-extinguishing and shall not support combustion. Cover with glass cloth tape equal to 3M Scotch 69 as a binder.
 2. Tape shall have been tested with 186-hour distilled water exposure and 3% salt water and shall be ultra-violet and weather resistant.
- H. Cable pulling compounds shall be UL Listed and be suitable for use with the specified cable insulation system. The compound shall reduce the coefficient of friction, while not adding any long term issues to the installation such as premature aging of the insulation system, added flammability or drying in such a manner as to stick the cable in place in the raceway.

2.4 WIRING DEVICES AND PLATES

- A. Provide wiring devices by single manufacturer. Catalog designations of Cooper are specified, unless noted otherwise, to establish standards of quality for materials and performance. Colors of devices as specified below are White for standard applications. Refer to the drawings for color requirements that vary from White. Equal products by Leviton, Pass & Seymour or Hubbell will be accepted. Provide published manufacturers cross-reference sheet highlighted with the device specified and that being submitted with all device product data for approval.
- B. Wall switches shall be of the totally enclosed tumbler type. Wiring terminals shall be spring loaded terminal screws for back or side wiring. Switches shall be rated 20-ampere 277 volt for use on alternating current only. The yoke shall have a grounding terminal with a green hex head screw. Pilot lights indicated shall consist of red lighted handle, illuminated when the switch is on.
- C. Switches shall be heavy duty, UL listed, specification grade as follows:
1. Toggle Switches - Single-pole shall be No. 2221W
 2. Occupancy Sensors
 - a. Provide occupancy sensors equal to Leviton ODS10-ID-W for single switching applications.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

D. Receptacles:

1. Receptacles shall be nylon faced with rigid, glass reinforced nylon bodies. Wiring terminals shall be spring loaded terminal screws for back or side wiring. Receptacles shall be rated 20-ampere 125 volt. The yoke shall have a grounding terminal with a green hex head screw.
2. Duplex receptacles shall be UL Federal Specification WC-596 Specification Grade Extra Hard Duty 125V, 20A, 2 pole, 3 wire as follows:
 - a. General Use shall be No. 5362W (White)
 - b. GFCI Exterior shall be GF20BK (Black) UL listed Weather Resistant

E. Wiring Device Plates:

1. Provide heavy-duty cast aluminum horizontally mounted weatherproof covers for GFCI receptacles where weatherproof devices are specified equal to Hubbell No. WP26MH. Cover shall be attached to FS box with 4 screws and spring back to the closed position upon removal of the cord set. Fasteners chrome-plated brass.
2. Provide all device plates for receptacles and switches with engraving. Engraving shall indicate associated panelboard name and circuit number.

2.5 OUTLET BOXES

- A. Outlet and switch boxes on concealed work shall be at least 4" square, galvanized pressed steel conforming to UL 514A. Outlet boxes shall be by Steel City Electric Company, Appleton Electric Company, or approved equal.
- B. Outlet boxes for interior surface mounted locations where RGS is specified where exposed to moisture and where indicated as weatherproof on Drawings shall be cast malleable iron with an aluminum polymer enamel coating equal to Appleton Type FD. Conduit entries shall be threaded cast hubs. Device covers shall be coated malleable iron with moisture sealing gasket and stainless steel fasteners.
- C. Outlet boxes for exterior surface mounting shall be cast aluminum alloy with an aluminum polymer enamel coating equal to Appleton Type FD. Conduit entries shall be threaded cast hubs. Device covers shall be cast aluminum alloy with moisture sealing gasket and stainless steel fasteners.
- D. All boxes shall have at least one tapped and threaded grounding hole for connection of a 10-32 grounding screw.
- E. Box depth shall accommodate code required volume for the specified installation. Through wall boxes shall not be used.
- F. Outlet boxes for various systems shall be cast where exposed to physical damage or installed in an exposed exterior location.

2.6 JUNCTION AND PULL BOXES

- A. Provide galvanized steel junction and pull boxes where indicated and as necessary to facilitate installation. Steel shall be minimum 16 gauge. Junction and pull boxes shall be of code required dimensions. Cover shall be of the same type and thickness material as the box construction.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- B. Junction and pull boxes intended for dry interior locations shall be NEMA 1 enclosures with accessible, removable screw-on covers. Covers shall be secured with corrosion-resistant screws with keyhole slots to accommodate easy removal.

- C. Junction and pull boxes intended for wet or exterior locations shall be NEMA 3R enclosures with hinged gasketed covers. Interior and exterior shall be finished with a gray enamel powder coat over the galvanized metal. Hinge shall be galvanized steel with stainless steel pin. Covers shall be secured with corrosion-resistant zinc plated lockable pull catches.

- D. Custom fabricated medium to large junction and pull boxes shall have internal structural steel bracing welded to form a rigid assembly adequate to maintain alignment and shape in shipment and installation.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

2.7 SAFETY DISCONNECT SWITCHES

- A. Switches shall be three-pole heavy-duty type rated for 600V in NEMA 1 (interior dry applications) and NEMA 3R (exterior applications) enclosures unless noted otherwise on the drawings. All switches shall be horsepower rated and suitable for service entrance use. Provide with solid neutral where four wire circuits are indicated and with 200% solid neutral where neutrals are sized for 200% full load ampacity.
1. Operating mechanisms shall be quick-make/quick-break. Current-carrying parts shall be high-conductivity copper. Contacts shall be silver-tungsten or plated. Provide positive pressure fuse clips and switch operating mechanism suitable for continuous use at rated capacity without auxiliary springs in current path. Switches shall withstand available fault current or let-through current before operating, without damage or rating change.
 2. Terminations shall be suitable for copper or aluminum conductors 60°/75° C rated. Clear shielding shall prevent accidental contact with energized line terminals.
 3. The cover shall be mechanically interlocked to prevent access unless the disconnect is in the OFF position. A defeater shall be provided to bypass this interlock. With the door open, an interlock shall be provided to prevent inadvertent closing of the disconnect. Padlocking facilities shall be provided to positively lock the disconnect in the OFF position with from one to three padlocks with the door open or closed.
 4. The enclosure shall be given a phosphatizing pretreatment. The paint finish shall be manufacturer's standard color and shall pass 600 hours of corrosion resistance testing per ASTM B 117.
- B. Fused switches shall have short circuit ratings no less than 100,000 amperes RMS, with capabilities to 200,000 amperes when used with Class J, L or R fuses at 480V from 400A to 1200A.

2.8 PANELBOARDS

- A. General
1. Provide dead-front lighting and power panelboards where shown on drawings and as scheduled.
 2. Panelboards shall meet or exceed requirements of NEMA Standard Publication PB-1, and UL-50 and 67. Panelboards shall be UL-listed.
 3. Where panelboards are used as service entrance equipment, they shall comply with all NEC and UL requirements for service. The panelboard shall include a UL service entrance label, incoming line isolation barriers and a removable neutral bond to ground for solidly grounded wye systems.
 4. Enclosures shall be at least 20 inches wide made of galvanized steel. Gutter space shall be in accordance with NEC requirements for the specified combination of devices and accessories. Fronts shall be reinforced steel with concealed hinges and concealed trim adjusting screws. Trim clamps are unacceptable. Where two section panels are required, bolt boxes together to form one unit. Trim shall be two-piece construction with doors of equal size over each section. Trims shall be cleaned, primed and painted gray ANSI 61.
 5. For panelboards up to 400 amps, provide cabinets with flush hinges and combination catch and lock to cover circuit breaker handles. Provide a directory card with a clear plastic cover mounted inside the door. Power and lighting

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

panels shall have heavy-duty, continuous, section vertical-hinged to box section for access to wiring gutters in addition to trim door. All locks shall be keyed alike. Panelboards greater than 400 amps shall be provided with a four-piece front to cover wiring gutter and wiring access areas.

6. Nameplates shall be in accordance with other sections of this specification.
7. The manufacturer shall warrant equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.
8. Panels shall be equal to Eaton- Pow-R-Line 2a for 400 A and below unless more than (1) 125 amp or larger branch breaker and/or space is specified. Eaton Pow-R-Line 4 or 5P (or equal) panelboards shall be provided for all applications greater than 400 amps and to accommodate multiple branch breakers greater than 125 amps. Approved equal panelboards by GE, Siemens or Square D will be considered.
9. Where specifically indicated on the drawings for Selective Coordination, provide fused panelboards equal to Eaton Pow-R-Line 2aF. All fuses in the system where selective coordination is required shall be manufactured by the same manufacturer.

B. Bussing

1. Main bus bars of panels shall be copper, rated to carry at least full rating of the panel as identified on the schedules.
2. Split solid neutral bus, with rated capacity equal to the phase bus, shall be plated and located in main compartment for all incoming neutral cables to be same length. Neutral bus shall be 200% rated where double sized neutrals are indicated and/or where the panel is supplied via a K-rated transformer.
3. Provide separate equipment ground bus for each panelboard. Where an isolated ground is specified, provide an additional isolated ground bus, which shall be insulated from the panel enclosure and equipment ground.
4. Panelboards shall have a short circuit current rating equal to or greater than circuit breaker AIC ratings schedule on the Drawings. Where series ratings are allowed, as per the schedule on the Drawings, a label shall be affixed to the panel stating the conditions of the UL Series rating including:
 - a. Size and type of upstream device
 - b. Branch devices that are acceptable
 - c. UL Series short-circuit rating
5. All lugs shall be UL listed tin-plated aluminum suitable for copper or aluminum cable for sizes indicated on the drawings. Provide oversized lugs to accommodate designed cable sizes or increase gutter space to allow use of solid stud compression lugs where necessary. All terminations shall be suitable for 75 degree C cable.
6. Provide bus connections for future overcurrent devices with suitable insulation and bracing to maintain proper short circuit rating and voltage clearances. All required hardware shall be installed and be in place for ready insertion of future breaker without the need to relocate adjacent units. Future spaces shall accommodate frame sizes up to 50% of the main bus ampacity.

C. Overcurrent Devices

1. Molded case circuit breakers shall be bolt-on devices. Multi-pole breakers shall have internal common trip crossbars for simultaneous tripping of each pole.
2. Trip units shall be:
 - a. Thermal magnetic below 400A frame unless solid state sensing specifically indicated on the drawings.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- b. Solid state trip units shall be provided on all molded case breakers at 400A frame and above. Trip units shall be equal to Eaton Digitrip 310.
 - 3. All breakers shall have handle trip indication and a trip indicator in the window of the circuit breaker housing.
 - 4. Internal accessories shall be UL Listed for field installation without removing the circuit breaker cover. Internal accessories shall be common to all frame sizes. Shunt trips, auxiliary contacts, and other accessories shall be factory installed.
- D. Submittals
 - 1. The manufacturer shall provide copies of the following documents for review and evaluation in accordance with general requirements of Division 01 and Division 26:
 - a. Product Data on specified product
 - b. Shop Drawings on specified product
 - c. Certified trip curves for each specified product
 - d. Nameplate list
 - e. Short circuit and coordination study shall be submitted with the equipment shop drawings to ensure rating conformity to study conclusions. Submittals made without the study shall be rejected.

2.9 DRY TYPE TRANSFORMERS

- A. Provide dry type general purpose transformers no greater than 600 volts as shown on Drawings. Design, manufacture and testing of transformers shall meet requirements of NEMA No. ST 20 , and list and label as complying with UL 1561.
- B. Power transformers shall be two winding dry type for general power and lighting applications. Transformers rated 1000 kVA or below shall be UL listed and bear required Listing Mark.
- C. Transformer minimum efficiencies shall comply with 2016 DOE Energy Efficiency Standards unless specifically noted otherwise. Transformers shall use properly classified UL approved temperature ratings. Insulation ratings shall be 220 degrees C based upon a 150°C rise. Transformers supplied to this specification shall be able to operate continuously at 100 percent nameplate rating at ambient temperatures not exceeding 40°C. Maximum temperature at top of enclosure shall not exceed 50°C rise above 40°C ambient. Transformers 5 KVA and above shall be able to meet ANSI/IEEE C57.96 daily overload requirements listed in drawings. Transformers loaded in accordance with this paragraph shall be capable of long service life under thermal conditions specified with no need for derating.
- D. Transformer cores shall be constructed of high grade, non-aging silicon steel with high magnetic permeability and low hysteresis and eddy current losses. Magnetic flux densities shall be kept well below core saturation point. Transformers shall have aluminum windings, continuous wound construction with vacuum impregnated insulation using non-moisture-absorbing varnish. There shall be no metal-to-metal contact between core and coil and enclosure.
- E. Primary winding of transformers rated less than 30 kVA shall have at least two taps, each providing 5% increment below full rated voltage. Each primary winding of each transformer 30 kVA and larger shall have six taps, two of which shall provide 2-1/2% increments above full rated voltage and four of which shall provide 2-1/2% increments below full rated voltage.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- F. Enclosures shall be of heavy gauge steel and meet UL 506 requirements for the following characteristics:
 - 1. Ventilation Openings
 - 2. Cable Bending Space
 - 3. Surface Temperature Rise
 - 4. Wiring Compartment Temperature Rise
 - 5. Terminations
- G. Transformers shall have sound levels equal to or lower than those established in latest revision of ANSI/IEEE C89.2.
- H. Manufacturer warrants equipment to be free from defects in materials and workmanship for 1 year from date of installation or 18 months from date of purchase, whichever occurs first.
- I. Submittals
 - 1. The manufacturer shall provide copies of the following documents for review and evaluation in accordance with general requirements of Division 01 and Division 26:
 - a. Product Data on specified product
 - b. Shop Drawings on specified product
 - c. Certified copies of all Type (Design) and Verification Test Reports

2.10 LIGHTING FIXTURES

- A. Provide lighting fixtures, equipment and components where shown on Drawings, as listed in fixture schedules and as specified, wired and assembled. Provide approved aligned canopies, hangers and other appurtenances as required, for a complete and functional system.
- B. Refer to the lighting fixture schedule for specific ballast requirement. In general:
 - 1. LED luminaires shall have a luminous efficacy of at least 90 lumens/watt, a color temperature of 3500 K (unless noted otherwise on the plans), a CRI of at least 80, an estimated life of at least 50,000 hours at 70% lumen maintenance, and shall include a minimum 5-year warranty on the entire luminaire including drivers. The luminaire and LEDs shall have been tested in accordance with LM-79 and LM-80

2.11 HANDHOLES

- A. Handholes
 - 1. Handholes and associated covers shall be constructed of polymer concrete consisting of aggregate matrix bound together with a polymer resin. Internal reinforcement may be provided by means of steel and/or fiberglass.
 - 2. Material shall have the following properties:
 - a. Compressive strength: 9000 psi
 - b. Flexural strength: 6000 psi
 - c. Tensile strength: 800 psi
 - 3. The installed enclosure shall be rated for a minimum test load of 8000 pounds distributed over a 10" x 10" area, and intended for non-deliberate vehicular traffic only unless specifically noted otherwise on the drawings.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

4. The boxes and covers shall be gray. Covers shall be provided with stainless steel bolts at each corner. The logo shall specifically identify the service inside, "Electrical", "Communications", "Lighting", etc. The logo shall be permanently recessed in the cover. Non-metallic covers shall be provided with electronic markers encased in the polymer concrete for ease in locating buried handholes.
5. Precast handholes shall be equal to Quazite composolite. Equal construction in precast or cast in place concrete will be accepted

PART 3 - EXECUTION

3.0 DEMOLITION

A. General

1. The Electrical Contractor shall visit the site before submitting his bid to familiarize himself with the existing conditions and the extent of the work. No extra compensation will be allowed for work required to be performed or to overcome existing conditions, by failure to visit the site.
2. The Electrical demolition work shall be performed by the Electrical Contractor in cooperation with the other trades and as scheduled and approved by the Owner's Representative.
3. The locations of existing equipment to remain including piping, ductwork, conduits, etc., are shown in an approximate way only. The Contractor shall determine the exact location of all existing equipment before commencing work.
4. Power outages caused by demolition that affect other areas shall be held to a minimum. Shutdowns shall be coordinated with the users and the Owner. Night, weekend and/or Holiday time required to perform electrical demolition work or new electrical work shall be carried as part of the Contract Cost.

B. Scope

1. The drawings illustrate the full extent of the scope of demolition. Disconnect and make safe all electrical equipment identified for removal on the plans. The electrical scope may extend beyond the area defined by the architectural demolition limits to fully comply with various requirements of these specifications.
2. The electrical demolition plans and details indicate the general scope and are not intended to show all items to be removed or retained. Devices and equipment located on walls and/or ceilings to be removed shall be disconnected and made safe. The Electrical Contractor shall notify the Owner's Representative of any unanticipated hidden conditions encountered during demolition.
3. The Electrical Contractor shall circuit trace and label all existing branch circuits and feeders within the area of demolition scope prior to de-energizing and disconnection. All circuits within panelboards identified for removal shall be traced and labeled to ensure that no area outside the demolition scope limit is affected.
4. The Electrical Contractor shall identify all branch circuits, feeders and system components, which are to remain within the area of demolition scope. There shall be no interruption of service to any area outside the scope limits without approval from the Owner's Representative. Existing equipment to remain shall be left in a code compliant manner.
5. The Electrical Contractor shall de-energize and remove all conductors and raceways to their points of origin within the area of demolition scope. Items identified for demolition shall not be abandoned in place.
6. The Electrical Contractor shall be responsible for the repair of all systems or building components damaged during the execution of the work. Damage shall include but not be limited to destruction or disposal of items intended to remain or to be salvaged.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

7. The Electrical Contractor shall temporarily support all items to remain that are affected by the demolition of building structural components (walls, ceilings, etc.). Temporarily supported items shall be permanently supported and installed when finalized structures are in place.
8. All demolition scope associated with low voltage systems including but not limited to telephone, data, security, etc. shall be included.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

C. Disposal

1. All removed items shall be legally disposed of unless identified for reuse. Refer to Part 1 of this specification for requirements for Hazardous Material disposal.
2. The Owner's Representative shall inspect all retained items prior to placement in the identified storage location by the Electrical Contractor . Selected items will be disposed at no additional cost to the project.

3.1 IDENTIFICATION

A. Nameplates

1. Provide nameplates on all equipment listed in other sections of this specification including but not limited to switchboards, substations, panelboards, transformers, junction and pull boxes, disconnect switches, motor starters and motor control centers, contactors, time clocks, remote control stations, fire alarm panels, smoke detector remote test/alarm stations and fire alarm annunciators.
2. Nameplates shall designate equipment tag number as defined on the drawings, system voltage where applicable, circuit number, device controlled and system function. Refer to typical nameplate detail on the drawings for additional requirements.
3. Submit a complete list of proposed nameplates prior to order to ensure conformance to design criteria. Submittal shall include nomenclature, size and layout of each tag.
4. Samples of stickers together with color schedules shall be submitted during the submittal phase of this project.

B. Equipment Identification

1. Equipment identification designations shall be taken from equipment schedules and coordinated with the Owner's facility group to assure designations match up with Owner's maintenance management system identification database.

3.2 RACEWAYS AND CONDUIT

A. General

1. Unless specified or shown on Drawings otherwise, install raceways and conduits concealed. Raceways and conduits may be run exposed on unfinished walls and ceilings with exposed structure.
2. Run concealed raceways and conduits in as direct lines as possible with minimum number of bends of longest possible radius. Install exposed raceways and conduits parallel to or at right angles to building lines.
3. Raceway and conduit runs shall be mechanically and electrically continuous from supply to outlet. Conduit shall enter and be secured to metallic enclosures with lock nut and bushing inside. Provide additional exterior lock nut for RGS connections. Bushings shall be the bonding type for conduit connections to metallic enclosures with concentric or eccentric knockouts. Lock nuts and bushings will not be required where conduits are screwed into threaded hubs.
4. Size raceways and conduits as required by NEC unless oversized raceways and conduits are shown on the Drawings. Raceways and conduits shall be ¾" minimum.
5. Install conduit systems complete before installation of conductors. Blow through and swab after plaster is finished and dry, and before conductors are installed.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

6. Raceways and conduits supports shall be rigidly attached to the building structure utilizing corrosion resistant components suitable for use with the selected raceway or conduit. Refer to the seismic restraint sections of this specification for any additional requirements.
 7. Field bending, cutting and threading shall be executed with the proper tools, resulting in bends and shortened conduits and raceways that are equivalent to factory fabricated and purchased components.
 8. Provide standoff clips for conduits on exterior and wet location walls.
 9. Protect all vertical conduit runs from the entrance of foreign material before installation of conductors and the final closure of the raceway system. All spare conduits (vertical and horizontal runs) shall be sealed with a bushing and appropriate insert to prohibit entrance of debris or vermin. Affix a label that indicates "Spare Conduit to _____" at each seal. Label shall be in accordance with the labeling section of this specification.
- B. Rigid Galvanized Steel (RGS) Conduit
1. RGS may be used for all raceway applications outlined for EMT and PVC. RGS shall be used in locations where subject to accidental damage or abuse and for all above grade exterior applications unless other wiring methods are specified on the drawings. All circuit conductors in excess of 600 V shall be installed in RGS.
 2. RGS shall not be used in corrosive environments.
 3. All RGS fittings shall be threaded. Utilize Erickson couplings where joining two threaded conduits that cannot be rotated.
- C. Polyvinyl Chloride (PVC) Non-metallic Conduit
1. PVC may be used for installation in concrete or direct burial applications where not subject to damage. PVC may be used in corrosive environments where specifically allowed on the drawings.
 2. PVC shall not be used for penetrations from concrete slabs. Transition to RGS shall be made a minimum of 2" below the slab finished surface, prior to penetration.
 3. All connections shall utilize solvent and glue in accordance with the recommendations of the conduit manufacturer.
- D. Fiberglass Reinforced Epoxy (FRE) Conduit shall be used in corrosive environments and where specified on the drawings, to replace PVC conduit.
- E. Miscellaneous Conduit Fittings
1. Expansion/Deflection Fittings: Raceways and conduit buried or secured rigidly on opposite sides of building expansion joints and long runs of exposed conduit subject to expansion and contraction due to variations in temperature shall have expansion fittings. Raceways and conduit shall cross building expansion joints at right angles. Provide separate external copper bonding jumper secured with grounding straps on each end of fitting. Fittings shall safely deflect and/or expand/contract to twice the distance of potential movement.
 2. Penetrations of all below grade exterior walls and flooring shall require approval by the Engineer and Architect. Submit proposed penetration points, size openings and penetration methods to Engineer and Architect. Penetrations shall utilize sealing fittings appropriately sized for the application. Duct bank penetrations are excluded from this requirement.
 3. Sealing Fittings shall be installed wherever conduits pass from warm to cold locations to minimize condensation within the conduit. Sealing fittings shall be installed with RGS penetration of the wall and terminate in a suitably sized junction box.
 4. Refer to other specification sections for requirements pertaining to sealing for hazardous atmospheres.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- F. Wireways shall be provided where specifically shown on the drawings or where the group mounting of controllers, disconnects, enclosures, etc warrant the use for elimination of multiple short conduit runs. Wireways shall be provided complete with all required appurtenances necessary to have a totally enclosed system rated for the environment. Wireways shall not be installed in any location where subject to accidental damage or abuse.

3.3 WIRE AND CABLE (600V)

- A. Homerun designations on the drawings are diagrammatic only. Install branch circuits and feeders from the power source to the attachment point as required for a complete system. Provide slack wire for connections to equipment installed by others. Refer to schedules and risers where specific conductor and associated raceway sizes are not indicated on the floor plans.
- B. Connect branch circuit homerun with two or three circuits and common neutral only where specifically shown on the drawings. Circuits with common neutrals shall not be connected to the same phase to ensure cancellation of the return current in the neutral conductor.
- C. Install wires and cable in raceways as specified. All conductor sizing is based upon no greater than three current carrying conductors in a conduit. Installation of up to six circuits (no greater than twelve current carrying conductors) in a single conduit will be allowed if the conductor sizing is increased to the required ampacity to accommodate de-rating factors required by the NEC and NFPA 70.
- D. The minimum wire size shall be #12 unless #14 specifically allowed on the drawings for wiring of controls. Branch circuits longer than 75' for 120 V and 175' for 277 V from panel to last outlet shall be increased a minimum of one size above that shown on the drawings to minimize voltage drop to less than 3%.
- E. Conductors shall be identified at all accessible locations in the following manner:
 - 1. Color code secondary service, feeders and branch circuit conductors as follows:

| <u>208/120 Volts</u> | <u>Phase</u> | <u>480/277 Volts</u> |
|-----------------------------|---------------------|-----------------------------|
| Black | A | Brown |
| Red | B | Orange |
| Blue | C | Yellow |
| White | Neutral | Gray |
| Green | Ground | Green |
 - 2. Provide nonferrous wire markers, embossed or printed to correspond with the Drawings. Labels shall be permanently marked so that the source of the branch circuit or feeder may be readily identified. Hand written labels are not acceptable. Embossed tag equal to 3M Scotch Code STL-TAG or SCS-TM shall be applied with two miniature cable ties or slipped through both end holes. Heat bonded tag equal to 3M Scotch Code SCS-HB shall be permanently affixed with a heat gun.
- F. Splices and Terminations
 - 1. No more than twelve splices of current carrying conductors or six circuits, whichever is greater, shall be allowed in a single enclosure or junction box.
 - 2. Splices and terminations shall be sized to the specified conductor. The insulation shall be cut back with the appropriate tools such that the conductors are not nicked or damaged.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. The compression tool shall be appropriate for the installation of the provided lug or butt splice to ensure pressure necessary for a proper connection is applied.
 4. Terminations shall not be stacked or bent unless specifically listed for the application.
- G. Arc-proofing shall be applied to all feeders greater than 100 Amperes where multiple circuits are installed in common enclosures such as handholes, and junction boxes. Apply tape in single, half-lapped layer as required by manufacturer's recommendations. Secure with strips of red plastic film tape on 208Y/120V conductors and yellow plastic film tape on 408Y/277V conductors.
- H. Cable Pulling
1. Pull cables that share conduit at same time into completely installed raceway. Conductors shall not be pulled in raceways with existing wiring.
 2. Submit cable pulling calculations for engineers' approval prior to all mechanically assisted pulls. Attach pull ropes to conductors with basket-weave grips on pulling eyes. Provide means to measure tension during entire pull. Utilize pulling compounds to lessen friction in accordance with the manufacturer's recommendations.
 3. Mechanically assisted pulls shall utilize equipment specifically designed for the purpose such as ropes, electric wench, pulleys, etc. The use of a motorized vehicle to assist in a cable pull is prohibited.

3.4 WIRING DEVICES AND PLATES

- A. Branch circuitry shall be attached to all devices using the attachment screw or utilizing back wiring chambers that utilize screws for compressing the connection on the wire. Quick stab features that do not require a positive screw on attachment for the conductor are not acceptable.
- B. Receptacle devices for other than 20 amp, 120 volt, 2-wire, circuits shall be provided with tags indicating voltage characteristics and circuit number of outlet that match the nameplate or engraving required on the faceplate.

3.5 OUTLET BOXES

- A. Outlet and switch boxes shall be securely fastened to metal studs with a minimum of two self-tapping screws. Boxes three gang and greater shall be securely fastened to studs on both sides of the box.
- B. Fasteners for mounting boxes in damp or wet locations shall be stainless steel.
- C. Pressed steel boxes shall not be used for exposed surface mounted locations below 8'0" AFF.

3.6 JUNCTION AND PULL BOXES

- A. Junction box covers shall be accessible.
- B. Pull boxes connected to concealed conduits shall be mounted with covers flush with finished wall or ceiling.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- C. Pull boxes exposed to rain or in damp/wet locations shall be weatherproof NEMA 3R unless noted otherwise on the drawings.
- D. No pull box shall be within 2 feet of another.
- E. Provide clamps, grids, cable ties and other non-conductive or combustible appurtenances to secure cables. No cable shall be unsupported for more than 30". Cables shall not touch or be unsupported within 1" of the box cover.
- F. Each junction and pull box shall have a suitable laminated plastic nameplate with white cut letters identifying power source, voltage and driven load of the associated branch circuits or feeders.
- G. Submit box sizing calculations to confirm all box dimensions are in accordance with code requirements with product data prior to installation.

3.7 SAFETY DISCONNECT SWITCHES

- A. Provide safety disconnects as required and indicated on the drawings. Each motor shall be provided with a local disconnecting means in accordance with code requirements.
- B. Disconnect switches for all applications with available fault current in excess of 10,000 amperes RMS symmetrical shall be fusible. Fuses shall be Class J, L or R and rejection clips shall be installed in the fuse holders to prohibit the installation of non-current limiting fuses.
- C. Each disconnect switch shall have a suitable laminated plastic nameplate with white cut letters identifying power source, voltage and driven load.

3.8 PANELBOARDS

- A. Storage
 - 1. Contractor shall store, protect, and handle products in accordance with recommended practices listed in manufacturer's Installation and Maintenance Manuals. Contractor shall store in a clean, dry space. Cover with heavy canvas or plastic to keep out dirt, water, construction debris, and traffic. Heat enclosures to prevent condensation.
 - 2. Low voltage panelboards shall be located in well-ventilated areas, free from excess humidity, dust and dirt and away from hazardous materials. Ambient temperature of area will be between -30 °C and +25 °C. Indoor locations shall be protected to prevent moisture from entering enclosure.
- B. Installation
 - 1. Provide 1/2" spacers for panelboards mounted at exterior walls below grade to establish 1/2" air space behind panel.
 - 2. Inspect installed panelboard(s) for anchoring, alignment, grounding and physical damage. Clean interiors to remove construction debris, dirt and shipping materials.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. Check tightness of all electrical connections with calibrated torque wrench. Minimum acceptable values are specified in manufacturer's instructions.
 4. Adjust all circuit breakers and doors for free mechanical operation as described in manufacturer's instructions.
 5. Adjust circuit breaker trip and time delay settings to values determined by the short circuit and coordination study.
 6. Directories shall be typed to indicate loads served by each circuit and mounted in a holder behind a clear protective covering.
- C. Circuit breakers used as a motor disconnecting means, and not in sight of the motor and the driven machinery location, shall be capable of being locked in the open position.
- D. Circuit breakers supplying fire alarm equipment and any others loads noted on the schedules shall be capable of being locked in the ON position. The locking means shall not inhibit the ability of the circuit breaker from performing its protective function.

3.9 DRY TYPE TRANSFORMERS

A. Installation

1. Inspect installed dry type transformers for anchoring, alignment, grounding and physical damage. Clean interiors to remove construction debris, dirt and shipping materials.
2. Check tightness of all mechanical and electrical connections with calibrated torque wrench. Minimum acceptable values are specified in manufacturer's instructions.
3. Connection of feeder to transformer shall be made with flexible metal conduit, no less than 18" and not exceeding 36".
4. Provide vibration-dampening mounts for all installations.
5. Connect secondary X₀ to ground in accordance with NEC for separately derived systems.

B. Testing

1. Measure and record the primary and secondary voltages at the:
 - a. Primary overcurrent device line terminals
 - b. Transformer primary terminals
 - c. Transformer secondary terminals
 - d. Secondary overcurrent device line terminals
2. Adjust taps to required setting to maintain nominal voltage output.

3.10 HANDHOLES

A. Handholes

1. Do not construct or set manholes until final conduit grading has been determined, including field changes required by underground interferences. Set frames and covers to final grade.
2. Commercial precast assemblies shall be set on six (6) inches of level, 90 percent compacted granular fill, ¾ inch to one (1) inch size, extending twelve (12) inches beyond the manhole on each side. Granular fill shall be compacted by a minimum of four passes with a plate type vibrator.
3. Cast-iron frames and covers not buried in masonry shall be cleaned of mortar, rust, grease, dirt and other contaminants, and given a coat of bituminous paint. Steel

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

frames not buried in masonry and steel covers shall be cleaned of mortar, dirt and grease by an approved blasting process. Surfaces that cannot be cleaned satisfactorily by blasting shall be cleaned to bare metal by wire brushing or other mechanical means. Surfaces contaminated with rust, dirt, oil, grease, or other contaminants shall be washed with solvents until thoroughly cleaned. Immediately after cleaning, surfaces shall be coated with a pretreatment coating or be given a crystalline phosphate coating. As soon as practicable after the pretreatment coating has dried, treated surfaces shall be primed with a coat of primer and one coat of synthetic exterior gloss enamel.

3.11 POWER SYSTEM STUDIES

A. Scope of Services

1. Provide a complete short-circuit study, equipment-interrupting or withstand evaluation, a protective-device coordination study and an arc-flash hazard analysis for the electrical distribution system.

The studies shall include all portions of the electrical distribution system from the normal and alternate sources of power throughout the low-voltage distribution system. Normal system operating methods, alternate operation, and operations which could result in maximum-fault conditions shall be thoroughly covered in the study.

2. A licensed professional engineer shall be in charge of performing the study and documenting recommendations, licensed in the state where Project is located. All elements of the study shall be performed under the direct supervision and control of this professional engineer.

B. Short-Circuit Study

1. The study shall be in accordance with applicable ANSI and IEEE standards.
2. The study input data shall include the utility company's short-circuit single and three phase contribution with the X/R ratio, the resistance and reactance components of each branch impedance, motor and generator contributions, base quantities selected, and all other applicable circuit parameters.
3. Short-momentary duties and interrupting duties shall be calculated on the basis of maximum available fault current at each switchgear bus, switchboard, motor control center, distribution panelboard, pertinent branch circuit panelboards, and other significant locations through the system.
4. An equipment evaluation study shall be performed to determine the adequacy of circuit breakers, controllers, surge arresters, busways, switches, and fuses by tabulating and comparing the short-circuit ratings of these devices with the maximum short-circuit momentary and interrupting duties. Evaluation study should be submitted prior to final approval of equipment submittals.

C. Protective-Device Coordination Study

1. A protective-device coordination study shall be performed to select or to verify the selection of power fuse ratings, protective-relay characteristics and settings, ratios, and characteristics of associated voltage and current transformers, and low-voltage breaker trip characteristics and settings.
2. The coordination study shall include all voltage classes of equipment from the utility's incoming line protective device down to and including each motor control center and/or panelboard. The phase and ground overcurrent protection shall be included as well as settings for all other adjustable protective devices.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

3. Coordination shall be in accordance with requirements of the NEC and the recommendations of the IEEE Standard 399. TC curves shall be provided for each typical branch scenario from source to largest branch circuit device.
4. The selection and settings of the protective devices shall be provided separately in a tabulated form listing circuit identification, IEEE device number, current transformer ratios, manufacturer, type range of adjustment, and recommended settings. A tabulation of the recommended power fuse selection shall be provided for all fuses in the system. Discrepancies, problem areas, or inadequacies shall be promptly brought to the Owner's attention.

D. Arc Flash Study

1. Determine arc flash levels based upon minimum and maximum available utility fault and protective device settings as determined in the Protective Device Coordination Study.
2. Label all switchboards, panelboards, disconnects, starters, VFD's and any other electrical equipment likely to require maintenance or adjustment while energized.
3. Identify the current appropriate ratings of personal protective equipment (PPE).
4. Establish the Flash Protection Boundary (approach limit distance) as required by NFPA 70E.
5. Provide equipment specific environment and chemical arc-flash hazard warning labels per NEC® Section 110.16 requirements.
6. Label shall identify the level of arc flash hazard and the required PPE level.
7. Identify the risk of personal injury as a result of exposure to incident energy released during an arc flash event for each electrical distribution component (switchboard, switchgear, MCC, starter, panelboard, disconnect).

E. Study Report

1. The results of the power system studies shall be summarized in a final report.
2. The report shall include the following sections:
 - a. Description, purposes, basis, and scope of the study and a single-line diagram of the portion of the power system which is included within the scope of study.
 - b. Tabulations of circuit breaker, fuse, and other equipment ratings versus calculated short-circuit duties and commentary regarding same.
 - c. Protective device time versus current coordination curves, tabulations of relay and circuit breaker trip settings, fuse selection, and commentary regarding same.
 - d. Fault-current tabulations including a definition of terms and a guide for interpretation.

F. Implementation

1. Engage an independent testing firm for the purpose of inspecting, setting, testing, and calibrating the protective relays, circuit breakers and other applicable devices as recommended in the power-system study report.
2. Affix arc-flash hazard warning labels to each electrical distribution component.

3.12 BASIC ACCEPTANCE TESTS

A. General Scope

1. This section covers the required field tests and inspections to assess the suitability for initial energization of electrical power distribution equipment and systems.

TOWN OF READING – BIRCH MEADOW PARK PHASE I RENOVATIONS

Reading, Massachusetts

Bid Documents

January 27, 2023

- Failed components shall be replaced and retested for no additional cost to the project.
2. The purpose of this specification is to assure that all tested electrical equipment and systems are operational and within applicable standards and manufacturer's tolerances and that the equipment and systems are installed in accordance with design specifications.
 3. All testing shall be performed by the Contractor responsible for the installation of the systems or by an independent testing organization under contract with the Contractor.
 4. All equipment utilized for testing shall have a valid calibration sticker. All test reports shall indicate the equipment utilized and its associated calibration due date.
 5. Coordinate all required shutdowns with the Owner. Any and all testing required after the Owner has taken occupancy (temporary or permanent) shall be assumed to be conducted during premium time.
 6. A written record of all tests and a final report summarizing the findings shall be submitted for approval prior to energizing any electrical power distribution equipment and systems. All equipment shall be left in clean operational condition.

B. Inspection and Test Procedures

The following tests shall be conducted using the noted section of the latest edition of NETA ATS Acceptance Testing Specifications for Electrical Power Distribution Equipment Systems as a reference:

1. Panelboard Assemblies – Visually inspect the equipment inside and out, check attachment to wall or floor, verify bus joint tightness, exercise all active components and perform continuity testing and megger phase to phase, neutral and ground. Minimum resistance shall be 100 megohms when 480V equipment tested at 1000VDC or 25 megohms when 208V equipment tested at 500VDC. Tabulate readings for each test. NETA ATS-7.1
2. Dry Type Transformers – Visually inspect the transformer inside and out, verify vibration isolation installation, verify installation of the grounding bonding jumper, verify termination joint tightness, measure no load and partially loaded voltage and adjust taps as necessary. NETA ATS-7.2
3. Low Voltage Cables - All feeders illustrated on the one line diagram shall be inspected and tested in accordance with the referenced standard. Visually inspect cables for physical damage, color code and proper termination. Check continuity for proper labeling and megger for insulation resistance. Megger test voltage shall be 1000VDC for 1 minute with no values less than 50 megohms. Tabulate readings for each feeder. NETA ATS-7.3
4. Low Voltage, Molded and Insulated Case Circuit Breakers with frame size greater than 225 amperes and/or with adjustable trip units shall be tested and adjustable settings dialed to match the coordination study criteria. Perform an insulation resistance test at 1000VDC (thermal magnetic) or 500VDC (solid state) for 1 minute from pole to pole and pole to ground, resistance values shall not be less than 100 megohms. Perform resistance test across open and closed breaker contacts of each phase. Test trip settings tolerance with primary current injection. Tabulate readings for each breaker. NETA ATS-7.6
5. Disconnect the main bonding jumper at the service and at each separately derived system and verify single connection between the grounded and grounding conductor. Reconnect all disconnected bonding connections. Test the grounding electrode system for resistance to earth to verify a maximum of 25 ohms. NETA ATS-7.13

END OF SECTION