| REQUEST FOR QUOTATION | TROY SCHOOL DISTRICT | REQUISITION |
|---|---|---|
| No. 9373 | 1140 RANKIN, TROY, MICHIGAN 48083 | |
| DUE DATE NO LATER THAN<br>12-8-06 3 p.m. | 248-823-4052<br>FAX: 248-823-4077 | DATE 11-20-06 |

## REQUEST FOR QUOTE – NOT AN ORDER

THIS FORM MUST BE UTILIZED WHEN RESPONDING TO THIS REQUEST
BID ENVELOPE ENCLOSED

THE RFQ NUMBER MUST APPEAR ON ALL QUOTATIONS AND RELATED CORRESPONDENCE, THIS IS NOT AN ORDER

| Quantity | DESCRIPTION | UNIT PRICE | AMOUNT |
|---|---|---|---|
| | Please supply us with your bid to furnish the Troy School District with BUILDING MANAGEMENT SYSTEM MODIFICATIONS for Troy High School per the attached specifications.<br><br>Copies of the bid are available at:<br>www.troy.k12.mi.us/purchasing/items_out_for_bid.htm<br><br>Bid recaps will be available at:<br>troy.k12.mi.us/purchasing/index.htm<br><br>FACSIMILE BID IS NOT ACCEPTABLE<br><br>Bids will not be accepted if submitted after the deadline specified (local time) in the advertisement to bid or in the information to bidders. The late submission of a bid makes the bid nonrepsonsive and is a material defect which shall not be waived by the Board of Education. Delays in the mail will not be considered. All Late bids in the mail will be returned to the bidder unopened.<br><br>Proposal for the submission of alternatives by vendors will be accepted and reviewed. However, if any substitution or departure is not clearly noted and described, it will be understood that the bid intends to exactly meet the specifications.<br><br>The Board of Education shall be the sole judge as to whether the proposed goods are “equal” or “approved”. Quotations must be mailed or delivered to the Purchasing Office, 1140 Rankin, Troy, MI 48083 no later than 3 p.m. on the date shown above. Michigan State Sales and Use Taxes and Federal Excise Taxes do not apply unless otherwise indicated. Exemption certificates will be furnished when necessary. This request imposes no obligations on the buyer. The Board of Education reserves the right to accept or reject any or all bids or to split awards by items or to accept bids, which will best serve the Board of Education. | | |

THIS AREA MUST BE FILLED IN

| | | | |
|---|---|---|---|
| DELIVERY TIME | PRICES FIRM FOR | NAME OF COMPANY | TELEPHONE NO. |
| TERMS | | NO. & STREET | FAX # |
| FOB DELIVERED | ALL DELIVERY CHARGES MUST BE INCLUDED IN PRICES SHOWN | CITY, STATE & ZIP CODE | E-MAIL |
| CONTACT PERSON (PLEASE PRINT) | | SIGNATURE | DATE |

**AFFIDAVIT OF BIDDER**

The undersigned, the owner or authorized officer of _____(the "Bidder), pursuant to the familial disclosure requirement provided in the _____ (the "School District") advertisement for construction bids, hereby represent and warrant except as provided below, that no familial relationships exist between the over(s) or any employee of _____ and any member of the Board of Education of the School District or the Superintendent of the School District.

List any Familial Relationships:

**BIDDER:**

_____

By: _____

Its: _____

STATE OF MICHIGAN )
)ss.
COUNTY OF _____)

This instrument was acknowledged before me on the _____ day of _____, 2006, by _____.

_____

, Notary Public

_____County, Michigan

My Commission Expires: _____

Acting in the County of: _____

# Troy School District

## Troy High School
## Building Management System Modifications
Specification

**TROY SCHOOL DISTRICT**
**TROY HIGH SCHOOL**

**INTEGRATED BUILDING AUTOMATION SYSTEM (IBAS) UPGRADE**

## PART 1 – GENERAL

### 1 General Scope of Work

1.1 The IBAS Contractor shall extend the existing Andover Infinity Control System and include all required, hardware, all operating and applications software necessary to perform the control sequences of operation, security functions and lighting control functions as called for in this specification or as shown on the drawings. The IBAS Contractor shall have visited the project site and obtained information as necessary prior to submittal of the bid to ensure that prevailing physical conditions and project arrangements that may be material to the performance of the work have been ascertained and accommodated in the bid. No claims for additional payments will be accepted due to the Contractor's failure to complete this survey.

1.2 The system is fully capable of integrating the following building subsystems into a single-seat:

- HVAC Control and Monitoring
- Security and Card Access
- Photo Badging
- Intrusion Detection
- Lighting Control
- Digital Video Surveillance (CCTV)
- Fire Alarm Monitoring
- Web Browser
- Elevator Control
- Parking Control Equipment
- Power Monitoring
- Access Initiated Control

1.3 All HVAC automation components of the system – application controllers, unitary controllers, I/O expansion modules, etc. shall be connected to the existing Andover Infinity Control System. At a minimum, provide controls for the following:

- Air handling units – Replace existing control valve and damper pneumatic actuators with electric actuators. Rework safety controls to ensure that the outside air damper closes, return air damper opens upon fan shutdown.
- Rooftop units – Replace existing control valve and damper pneumatic actuators with electric actuators.
- Exhaust and supply fans – Replace existing control valve and damper pneumatic actuators with electric actuators.
- Chilled water system including pumps, chillers, and cooling towers – Replace existing control valve and damper pneumatic actuators with electric actuators.
- Boilers including hot water pumps – Replace existing control valve and damper pneumatic actuators with electric actuators.
- VAV boxes – Replace existing pneumatic controls with i2866 controllers and replace existing pneumatic actuators with electrical type. Install new tamper proof space

sensor and tie in existing occupancy sensor where available. Coordinate DDC control with associated fin tube radiation or radiant ceiling panels.

- Finned tube and radiant ceiling panel control – Replace existing control valve pneumatic actuators with electric actuators and tie into nearest DDC controller.
- Extend power and communications as required to accommodate new controllers.
- For all of the above mentioned electric actuators: actuators shall be sized be per the manufacturer's recommendations to insure tight close off and smooth modulation. Expand or modify existing controller I/O as necessary to accommodate new controls.
- Expand and/or provide additional network controllers and signal conditioning as necessary to accommodate the additional controllers being added.
- Test and calibrate the air flow sensor on each VAV Terminal unit after it is converted to DDC control. Maintain original air flow design parameters.

## 2 Approved System Contractors and Manufacturers

2.1 A. The following are the approved IBAS Manufacturers:

- TAC Andover Controls Infinity/Continuum System

2.2 IBAS Contractor Qualifications: Factory Authorized Representatives of TAC A.C.E certified to provide TAC's integrated solution including Building Temperature Controls, Lighting Control, Access Control, Intrusion Detection & Digital Video Recording utilizing the owners existing Continuum Integrated Cyberstation database. All bidders must have a minimum of 5 years experience with like systems and be prepared within 24 hours of notification to demonstrate live system(s) prior to award. The successful bidder shall have an office within a 50-mile distance of the project jobsite that offers complete maintenance and support services on a 24-hour, 365 day/year basis. This office shall have direct access to or inventory of spare parts and all necessary test and diagnostic equipment required to install, commission, and service the IBAS provided.

2.3 The IBAS architectures shall consist of the products of manufacturers regularly engaged in the production of technology systems and shall be these manufacturer's latest standard of design and release for these products at the time of bid.

2.4 The software and firmware on the network shall be updated at the latest currently available manufacturer's revision at the start of Warranty.

## 3 Codes And Standards

3.1 All work, materials, and equipment shall comply with the rules and regulations of all codes and ordinances of the local, state, and federal authorities. Such codes, when more restrictive, shall take precedence over these plans and specifications. As a minimum, the installation shall comply with the current editions in effect 30 days prior to receipt of bids of the following codes:

- National Electric Code (NEC)
- Standard Building Code
- Standard Mechanical Code

3.2 If the drawings and/or specifications are in conflict with governing codes, the Contractor shall submit a proposal with appropriate modifications to the project to meet code restrictions. If this specification and associated drawings exceed governing code

requirements, the specification will govern. The Contractor shall obtain and pay for all necessary construction permits and licenses.

3.3 Provide BAS components and ancillary equipment, which are UL-916 listed and labeled.

3.4 All equipment or piping used in conditioned air streams, spaces or return air plenums shall comply with NFPA 90A Flame/Smoke/Fuel contribution rating of 25/50/0 and all applicable building codes or requirements.

3.5 Comply with FCC rules, Part 15 regarding Class A radiation for computing devices and low power communication equipment operating in commercial environments.

3.6 Comply with FCC, Part 68 rules for telephone modems and data sets.

## 4 System Performance

Performance Standards. The integrated system shall conform to the following:

**Table 1: Reporting Accuracy**

| Measured Variable | Reported Accuracy |
|---|---|
| Space Temperature | ±0.5ºC [±1ºF] |
| Ducted Air | ±0.5ºC [±1ºF |
| Outside Air | ±1.0ºC [±2ºF] |
| Dew Point | ±1.5ºC [±3ºF] |
| Water Temperature | ±0.5ºC [±1ºF] |
| Delta-T (water and/or air) | ±0.15ºC[±0.25ºF] |
| Relative Humidity | ±5% RH |
| Water Flow | ±5% of full scale |
| Airflow (terminal) | ±10% of full scall (see Note 1) |
| Airflow (measuring stations) | ±5% of full scale |
| Airflow (pressurized spaces) | ±3% of full scale |
| Air Pressure (ducts) | ±25 Pa [±0.1 "W.G.] |
| Air Pressure (space) | ±3 Pa [±0.01 "W.G.] |
| Water Pressure | ±2% of full scale (see Note 2) |
| Electrical (A, V, W, Power factor) | 5% of reading (see Note 3) |
| Carbon Monoxide (CO) | ±5% of reading |
| Carbon Dioxide (CO2) | ±50 ppm |

Note 1: 10%-100% of scale
Note 2: For both absolute and differential pressure
Note 3: Not including utility-supplied meters

**Table 2: Control Stability and Accuracy**

| Controlled Variable | Control Accuracy | Range of Medium |
|---|---|---|
| Air Pressure | ±50 Pa [±0.2" w.g.}<br>±3 Pa [±0.01" w.g.] | 0-1.5 kPa [0-6" w.g.]<br>-25 to 25 Pa [-0.1 to 0.1" w.g.] |
| Airflow | ±10% of full scale | |
| Space Temperature | ±1.0ºC [±2.0ºF] | |

| | |
|---|---|
| Duct Temperature | ±1.5ºC [±3.0ºF] |
| Humidity | ±5% RH |

## 5 Submittals

5.1 Contractor shall provide shop drawing submittals on all control hardware, software, and equipment that both exists and that is to be provided under the proposed work. No work may begin on any segment of this project until submittals have been reviewed and approved for conformity with the design intent.

5.2 All shop drawings shall be prepared in AutoCAD 2004 or higher software. In addition to the drawings, the Contractor shall furnish a CD containing the identical information. Drawings shall be minimally 11” x 17” in size or larger.

5.3 Shop drawings shall include a riser diagram depicting locations of all controllers and workstations, with associated network wiring. Also included shall be individual schematics of each mechanical system showing all connected points with reference to their associated controller. Typicals will be allowed where appropriate.

5.4 Submittal data shall contain manufacturer's data on all hardware and software products required by the specification.

5.5 Control damper schedule including a separate line for each damper and a column for each of the damper attributes including: code number, fail position, damper type, damper operator, blade type, bearing type, seals, duct size, damper size, mounting and actuator type.

5.6 Control valve schedules including a separate line for each valve and a column for each of the valve attributes: code number, configuration, fail position, pipe size, valve size, body configuration, close off pressure, capacity, valve CV, calculated CV, design pressure, actual pressure and actuator type.

5.7 Room schedule including a separate line for each VAV box and terminal unit indicating minimum/maximum cfm, pickup gain, box area, and bias setting.

5.8 When manufacturer's cut sheets apply to a product series rather than a specific product, the data specifically applicable to the project shall be highlighted or clearly indicated by other means. Each submitted piece of literature and drawings shall clearly reference the specification and/or drawing that the submittal is to cover. General catalogs shall not be accepted as cut sheets to fulfill submittal requirements.

5.9 Software submittals shall contain narrative descriptions of sequences of operation, program listings, point lists, and a complete description of the graphics, reports, alarms and configuration to be furnished. Information shall be bound or in a three ring binder with an index and tabs.

5.10 Submit ten (4) copies of submittal data and shop drawings to the Owner for review prior to ordering or fabrication of the equipment. The Contractor prior to submitting shall check all documents for accuracy.

5.11 The Owner will make corrections, if required, and return to the Contractor. The Contractor will then resubmit with the corrected or additional data. This procedure shall be repeated until all corrections are made to the satisfaction of the Owner and the submittals are fully approved.

5.12 Submittals shall be provided within 8 weeks after project award.

## 6 Project Record Documents

Upon completion of installation, submit three copies of record (as-built) documents. The documents shall be submitted for approval prior to final completion and shall include:

6.1 Project Record Drawings. These shall be as-built versions of the submittal shop drawings.

6.2 Testing and Commissioning Reports and Checklists. Completed versions of all reports and checklists, along with all trend logs, used to meet the requirements of Part 3: "Control System Demonstration and Acceptance."

6.3 Operation and Maintenance (O & M) Manual. This shall include as-built versions of the submittal product data. In addition to the information required for submittals, the O & M manual shall include:

- Names, addresses, and 24-hour telephone numbers of Contractors installing equipment, and the control systems and service representatives of each.
- Operators Manual with procedures for operating the control systems, including logging on/off, alarm handling, producing point reports, trending data, overriding computer control, and changing set points and other variables. One set of Programming Manuals with a description of the programming language (including syntax), statement descriptions (including algorithms and calculations used), point database creation and modification, program creation and modification, and use of the editor.
- A listing and documentation of all custom software created using the programming language, including the set points, tuning parameters, and object database. One set of magnetic/optical media containing files of the software and database also shall be provided.
- One set of magnetic/optical media containing files of all color graphic screens created for the project.
- A list of recommended spare parts with part numbers and suppliers.
- Complete original issue documentation, installation, and maintenance information for all third-party hardware provided, including computer equipment and sensors.
- Complete original issue diskettes for all software provided, including operating systems, programming language, operator workstation software, and graphics software.
- Licenses, guarantee, and warranty documents for all equipment and systems.

## 7 Training

The IBAS Contractor shall provide both on-site and classroom training to the Owner's representative and maintenance personnel per the following description:

7.1 On-site training shall consist of a minimum of (8) hours of hands-on instruction geared at the operation and maintenance of the installed systems. The curriculum shall include

- System Overview
- System Software and Operation
  - System access
  - Software features overview
  - Changing setpoints and other attributes

- Adding and editing personnel records
- Alarm operation
- Scheduling
- Editing programmed variables
- Displaying color graphics
- Running reports
- Workstation maintenance
- Application programming
- Access control programming
- Video photo imaging

- Operational sequences including start-up, shutdown, adjusting and balancing.
- Equipment maintenance.

7.2 Provide a complete set of DDC operating manuals, programming manuals, maintenance manuals and back up CD/Software used to set up and program the DDC system.

7.3 The Contractor shall provide a course outline for all training classes at least six weeks prior to the first class. The Owner may modify any or the entire training course outline to meet the needs of the Owner. Review and approval by the Owner shall be completed at least three weeks prior to the first class.

## 8 Warranty

8.1 The integrated system contractor shall warrant the system for 12 months after system acceptance and beneficial use by the owner. During the warranty period, the integrated building system contractor shall be responsible for all necessary revisions to the software as required to provide a complete and workable system consistent with the letter and intent of the Sequence of Operation section of the specification.

8.2 The Contractor shall respond to the Owner's request for warranty service within 24 hours during normal business hours. 4-hour service response is required for all emergency service calls.

8.3 Updates to the manufacturer’s software shall be provided at no charge during the warranty period.

# PART 2 – PRODUCTS

## 1 System Description

1.1 The Integrated Building Automation System (IBAS) shall encompass the HVAC control system, electronic access control, security system, lighting control system, video surveillance and recording system. The IBAS shall also interoperate with the fire alarm system to annunciate alarms. The IBAS shall be controlled through a single graphical, web-based operator interface that allows for instant access to any sub-system through a standard browser. Systems requiring two or more different PC workstations are unacceptable.

1.2 The Owner shall provide all private and public telephone lies, ISDN lines and Internet Service Provider services and connections as necessary for the Contractor to complete the work as contracted at the Owner’s direct cost. The IBAS Contractor shall identify the specific requirements in a shop drawing submittal.

1.3 Access Control – The system shall be able to make access granted or denied decisions, define access privileges, and to set schedules and holiday groups. And through the use of application programming these inputs and outputs shall be capable of being linked at all field controllers for purposes of implementing system-wide control strategies. The system shall support features such as area control, anti-passback, dial-up field hardware communications, extended shunt time, time and attendance, and multiple-man rule.

1.4 Card Holder Management and Enrollment – The IBAS shall include a card holder management system integrated with the access control system. This system shall include all cameras, cables, printers, tripod, PC, and 500 blank cards. The card holder management functionality shall allow the enrollment of card holders into the database, capturing of images, and import/export employee data. This functionality shall also allow the user to assign or modify access privileges of a card holder.

The IBAS shall include a state-of-the-art credential creation and production system integrated with the card holder management system. This shall allow the creation of different badge types based on database fields and the use of security colors for School District personnel to quickly identify personnel access authority by the badge design.

1.5 Lighting Control – The IBAS shall include sufficient quantity of lighting controllers to provide zone-by-zone control of lighting circuits, as indicated on the Electrical Drawings, E-2. Lighting controllers shall be controlled through the IBAS graphical workstation environment, with manual override, scheduled on/off, and occupancy sensor control.

1.6 Smoke Management – When a fire alarm or early warning smoke detection alarm is triggered, the system shall perform all necessary smoke purge and fan shutdown procedures as appropriate for the site.

## 2 System Architecture

2.1 General – The Integrated Building Automation System (IBAS) shall consist of a two-tiered system, an upper-level Ethernet TCP/IP network, and a twisted-pair field bus based on BACnet MS/TP. All field bus communications must be routed through Ethernet-based Network Controllers or Routers, and not directly through PC workstations or servers. The contractor shall provide all communications media, connectors, repeaters, hubs and routers necessary for a complete system.

2.2 Level 1 Network Description: Level 1, the main backbone of the system, shall be an Ethernet 10/100bT LAN/WAN, using BACnet/IP as the communications protocol. Network Router/Controllers, DVRs, Card Access Network Controllers, Operator Workstations, and the Central File Server shall connect directly to this network without the need for Gateway devices. Up to 1,000,000 devices (workstations, controllers, video recorders, etc.) can be connected to this backbone.

2.3 Level 2 Network Description: Level 2 of the system shall consist of one or more BACnet MS/TP field buses managed by the Network Router/Controllers. Minimum speed shall be 76.8kbps. The Level 2 field bus consists of an RS485, token passing bus that supports up to 127 Standalone Digital Control Units (SDCUs) for operation of HVAC equipment and lighting.

2.4 Dial-Up (RAS) Connectivity: The IBAS shall also be capable of managing remote systems via standard dial-up phone lines as a standard component of the software. Front-end “add-on” software modules to perform remote site communication will not be allowed.

2.5 Communication services over the network shall result in operator interface and value passing that is transparent to the network architecture as follows:

- Connection of an operator interface device to any one controller on the network will allow the operator to interface with all other controllers as if that interface were directly connected to the other controllers. Data, status information, reports, system software, custom programs, etc., for all controllers shall be available for viewing and editing from any one controller on the network.
- All database values (e.g., objects, software variables, custom program variables) of any one controller shall be readable by any other controller on the network. This value passing shall be automatically performed by a controller when a reference to a object name not located in that controller is entered into the controller's database. An operator/ installer shall not be required to set up any communication services to perform network value passing.

2.6 The time clocks in all controllers shall be automatically synchronized daily via the network. An operator change to the time clock in any controller shall be automatically broadcast to all controllers on the network.

2.7 IBAS LAN Segmentation: The IBAS shall be capable of being segmented, through software, into multiple local area networks (LANs) distributed over a wide area network (WAN), sharing a single SQL file server. This enables workstations to manage a single LAN (or building), and/or the entire system with all devices being assured of being updated by and sharing the most current database. In the case of a single workstation system, the workstation shall contain the entire database – with no need for a separate file server.

2.8 Standard Network Support: All NRCs, Workstation(s) and File Server shall be capable of residing directly on the owner's Ethernet TCP/IP LAN/WAN with no required gateways. Furthermore, the NRC's, Workstation(s) and File Server shall be capable of using standard, commercially available, off-the-shelf Ethernet infrastructure components such as routers, switches and hubs. With this design the owner may utilize the investment of an existing or new enterprise network or structured cabling system. This also allows the option of the maintenance of the LAN/WAN to be performed by the owner's Information Systems Department as all devices utilize standard TCP/IP components.

2.9 System Expansion: The IBAS system shall be scalable and expandable at all levels of the system using the same software interface, and the same Level 1 and Level 2 controllers.

2.10 The system shall use the same application programming language for all levels: Operator Workstation, Network Router/Controller, and Standalone Digital Control Unit. Furthermore, this single programming language shall be used for all applications: environmental control, card access control, intrusion detection and security, lighting control, leak detection / underground storage tank monitoring, and digital data communication interfaces to third party microprocessor-based devices.

## 3 Operator Workstation Requirements

3.1 General – The existing operator workstation is located at TSD Services Building on Rankin Street.

3.1.1 Color Graphic Displays

IBAS Contractor shall build the following graphics screens, complete with all pertinent graphics points:

- Digitized view of building with icons for each sub heading.
- Time and event programming (showing floor plan with each area as different color).
  - Air Handlers
  - VAV Terminal Units
  - Fin Tube Radiation
  - Radiant Ceiling Panels
  - Occupancy Sensor Status

- Central equipment
  - Hot water system including boiler, hot water pumps, VFDs, and 3-way valve.
  - Chilled water system including chiller, chilled water pumps, cooling tower, and condenser water pumps.
  - Misc. equipment (as needed)

- Room data
  - Click on floor plan to bring up any room. Room plans shall show all the rooms parameters. For a typical room shall be graphic showing a VAV box with all its working parameters such as damper position, inlet air temperature, valve position, actual CFM, room set point, space temperature, CFM set point, and fan control. Each room will be required to have its own graphic page.

3.1.2 VAV Terminal Unit Controllers

VAV Controllers shall be Andover Controls Model #i2866.

VAV Controllers will come equipped with a built-in actuator for modulation of the air damper. The actuator shall have a minimum torque rating of 35 in.-lb. minimum, and contain an override mechanism for manual positioning of the damper during startup and service.

VAV Controllers shall contain an integral velocity sensor accurate to +/- 5% of the full range of the box's CFM rating.

Each controller shall perform the sequence of operation described in Part 3 of this specification, and have the capability for local time of day scheduling, occupancy mode control, after hours operation, lighting control, alarming, and trending.

VAV Controllers shall be able to communicate with any other Standalone Digital Control Unit on the same field bus.

## 3.2 DDC Sensors and Point Hardware

### 3.2.1 Temperature Sensors

- All temperature devices shall use precision thermistors accurate to +/- 1 degree F over a range of –30 to 230 degrees F. Space temperature sensors shall be concealed, tamper proof, stainless steel wall plate sensors accurate to +/- .5 degrees F over a range of 40 to 100 degrees F,
- Duct temperature sensors shall incorporate a thermistor bead embedded at the tip of a stainless steel tube. Probe style duct sensors are useable in air handling applications where the coil or duct area is less than 14 square feet.
- Averaging sensors shall be employed in ducts which are larger than 14 square feet. The averaging sensor tube must contain at least one thermistor for every 3 feet, with a minimum tube length of 12 feet.
- A pneumatic signal shall not be allowed for sensing temperature.

### 3.2.2 Humidity Sensors

- Humidity devices shall be accurate to +/- 5% at full scale for space and +/- 3% for duct and outside air applications. Suppliers shall be able to demonstrate that accuracy is NIST traceable.
- Provide a hand held field calibration tool that both reads the output of the sensor and contains a reference sensor for ongoing calibration.

### 3.2.3 Pressure Sensors

- Air pressure measurements in the range of 0 to 10” water column will be accurate to +/- 1% using a solid-state sensing element. Acceptable manufacturer is Veris or approved equal.
- Differential pressure measurements of liquids or gases shall be accurate to =/- 0.5% of range. The housing shall be Nema 4 rated.

### 3.2.4 Current and KW Sensors

- Current status switches shall be used to monitor fans, pumps, motors and electrical loads. Current switches shall be available in solid and split core models, and offer either a digital or an analog signal to the automation system. Acceptable manufacturer is Veris or approved equal.

## 3.3 Control Valves

- Provide automatic control valves suitable for the specified controlled media (steam, water or glycol). Provide valves which mate and match the material of the connected piping. Equip control valves with the actuators of required input power type and control signal type to accurately position the flow control element and provide sufficient force to achieve required leakage specification.
- Control valves shall meet the heating and cooling loads specified, and close off against the differential pressure conditions within the application. Valves should be sized to operate accurately and with stability from 10 to 100% of the maximum design flow.
- Trim material shall be stainless steel for steam and high differential pressure applications.
- Electric actuation should be provided on all terminal unit reheat applications.
- All heating valves shall be spring return.

3.4 Damper Actuators

- Damper actuators shall be electronic, and shall be direct coupled over the shaft, without the need for connecting linkage. The actuator shall have electronic overload circuitry to prevent damage. For power-failure/safety applications, an internal mechanical, spring return mechanism shall be built into the actuator housing. Non-spring return actuators shall have an external manual gear release to allow positioning of the damper when the actuator is not powered.
- All outdoor, return air, and exhaust air actuators shall be spring return.

3.5 Occupancy Sensors

- Shall be a ceiling mounted passive infrared (PIR) occupancy sensor specifically designed to interface with Building Automation Systems through an isolated relay.
- Sensor shall have user adjustable time delay from 30 second to 30 minutes on deactivation.
- Unit to be programmed through DIP switches to prevent unnecessary cycling.
- Unit shall have built in override switch and two levels of sensitivity; selectable through DIP switches.
- Unit shall cover up to 1200 $ft^2$.

## PART 4 – EXECUTION

### 1 Contractor Responsibilities

1.1 General

Installation of the integrated building automation system shall be performed by the IBAS Contractor or a subcontractor. However, all installation shall be under the personal supervision of the IBAS Contractor. The IBAS Contractor shall certify all work as proper and complete. Under no circumstances shall the design, scheduling, coordination, programming, training, and warranty requirements for the project be delegated to a subcontractor.

1.2 Demolition

Remove controls which do not remain as part of the integrated building automation system, all associated abandoned wiring and conduit, and all associated pneumatic tubing. The Owner will inform the Contractor of any equipment which is to be removed that will remain the property of the Owner. All other equipment which is removed will be disposed of by the Contractor.

1.3 Access to Site

Unless notified otherwise, entrance to building is restricted. No one will be permitted to enter the building unless their names have been cleared with the Owner or the Owner's Representative.

1.4 Code Compliance

All wiring shall be installed in accordance with all applicable electrical codes and will comply with equipment manufacturer's recommendations. Should any discrepancy be

found between wiring specifications in Division 15975 and Division 16, wiring requirements of Division 15975 will prevail for work specified in Division 15975.

1.5 Cleanup

At the completion of the work, all equipment pertinent to this contract shall be checked and thoroughly cleaned, and all other areas shall be cleaned around equipment provided under this contract.

## 2 Wiring, Conduit, and Cable

2.1 All wiring requirements shall conform to these standards the most recent version of the NEC and local electrical codes.

2.2 All wire will be copper and meet the minimum wire size and insulation class listed below:

| Wire Class | Wire Size | Isolation Class |
|---|---|---|
| Power | 12 Gauge | 600 Volt |
| Class One | 14 Gauge Std. | 600 Volt |
| Class Two | 18 Gauge Std. | 300 Volt |
| Class Three | 18 Gauge Std. | 300 volt |
| Communications | Per Mfr. | Per Mfr. |

2.3 Power and Class One wiring may be run in the same conduit. Class Two and Three wiring and communications wiring may be run in the same conduit.

2.4 Where different wiring classes terminate within the same enclosure, maintain clearances and install barriers per the National Electric Code.

2.5 Where wiring is required to be installed in conduit, EMT shall be used for interior applications and Rigid for exterior applications. Conduit shall be minimum 3/4 inch. Watertight compression fittings shall be used for exterior locations and interior locations subject to moisture, otherwise set screw fittings are acceptable. Provide conduit sealoff fitting where exterior conduits enter the building or between areas of high temperature or moisture differential.

2.6 In mechanical rooms flexible metallic conduit (max. 6 feet) shall be used for connections to motors, actuators, controllers, and sensors mounted on vibration producing equipment. Liquid-tight flexible conduit shall be use in exterior locations and interior locations subject to moisture.

2.7 Junction boxes shall be provided at all cable splices, equipment termination, and transitions from EMT to flexible conduit. Interior dry location J-boxes shall be galvanized pressed steel, nominal four-inch square with blank cover. Exterior and damp location JH-boxes shall be cast alloy FS boxes with threaded hubs and gasketed covers.

2.8 All concealed wiring shall be plenum rated and run through bridal rings at 10’ intervals or change in direction following building lines

2.9 Conduit is required in all mechanical rooms, boiler room, equipment rooms, and in exposed spaces.

2.10 All electric wiring in conjunction with the automatic temperature control system expansion shall be furnished and installed by the IBAS Contractor including all interlock and low voltage control and communication wiring. All power wiring and 110V control wiring shall

be by the IBAS Contractor. Power shall be provided as required from the nearest electrical panel. IBAS Contactor shall provide all breakers, transformers, etc., in order to complete the installation outlined in these specifications.

## 3 Hardware Installation

### 3.1 Installation Practices for Wiring

3.1.1 All controllers are to be mounted vertically and per the manufacturer's installation documentation.

3.1.2 The 120VAC power wiring to each Ethernet or Remote Site controller shall be a dedicated run, with a separate breaker. Each run will include a separate hot, neutral and ground wire. The ground wire will terminate at the breaker panel ground. This circuit will not feed any other circuit or device.

3.1.3 A true earth ground must be available in the building. Do not use a corroded or galvanized pipe, or structural steel.

3.1.4 Wires are to be attached to the building proper at regular intervals such that wiring does not droop. Wires are not to be affixed to or supported by pipes, conduit, etc.

3.1.5 Conduit in finished areas, will be concealed in ceiling cavity spaces, plenums, furred spaces and wall construction. Exception; metallic surface raceway may be used in finished areas on masonry walls. All surface raceway in finished areas must be color matched to the existing finish within the limitations of standard manufactured colors.

3.1.6 Conduit, in non-finished areas where possible, will be concealed in ceiling cavity spaces, plenums, furred spaces, and wall construction. Exposed conduit will run parallel to or at right angles to the building structure.

3.1.7 Wires are to be kept a minimum of three (3) inches from hot water, steam, or condensate piping.

3.1.8 Where sensor wires leave the conduit system, they are to be protected by a plastic insert.

3.1.9 Wire will not be allowed to run across telephone equipment areas.

3.1.10 Sensors, humidistats, and thermostats shall be installed with centerline approximately 4'-0" AFF or as required by ADA.

3.1.11 Install thermostat guards on sensors, humidistats, and thermostats located in the toilet rooms, lobbies, corridors, vestibules, cafeterias, and other public areas.

### 3.2 Installation Practices for Field Devices

3.2.1 Well-mounted sensors will include thermal conducting compound within the well to insure good heat transfer to the sensor.

3.2.2 Actuators will be firmly mounted to give positive movement and linkage will be adjusted to give smooth continuous movement throughout 100 percent of the stroke.

3.2.3 Relay outputs will include transient suppression across all coils. Suppression devices shall limit transients to 150% of the rated coil voltage.

3.2.4 For duct static pressure sensors, the high pressure port shall be connected to a metal static pressure probe inserted into the duct pointing upstream. The low pressure port shall be left open to the plenum area at the point that the high pressure port is tapped into the ductwork.

3.2.5 For building static pressure sensors, the high pressure port shall be inserted into the space via a metal tube. Pipe the low pressure port to the outside of the building.

3.3 Enclosures

3.3.1 For all I/O requiring field interface devices, these devices where practical will be mounted in a field interface panel (FIP). The Contractor shall provide an enclosure which protects the device(s) from dust, moisture, conceals integral wiring and moving parts.

3.3.2 FIPs shall contain power supplies for sensors, interface relays and contactors, and safety circuits.

3.3.3 The FIP enclosure shall be of steel construction with baked enamel finish, NEMA 1 rated with a hinged door and keyed lock. The enclosure will be sized for twenty percent spare mounting space. All locks will be keyed identically.

3.3.4 All wiring to and from the FIP will be to screw type terminals. Analog or communications wiring may use the FIP as a raceway without terminating. The use of wire nuts within the FIP is prohibited.

3.3.5 All outside mounted enclosures shall meet the NEMA-4 rating.

3.3.6 The wiring within all enclosures shall be run in plastic track. Wiring within controllers shall be wrapped and secured.

3.4 Identification

3.4.1 Identify all control wires with labeling tape or sleeves using either words, letters, or numbers that can be exactly cross-referenced with as-built drawings.

3.4.2 All field enclosures, other than controllers, shall be identified with a bakelite nameplate. The lettering shall be in white against a black or blue background.

3.4.3 Junction box covers will be marked to indicate that they are a part of the IBAS system.

3.4.4 All I/O field devices (except space sensors) that are not mounted within FIP's shall be identified with name plates.

3.4.5 All I/O field devices inside FIP's shall be labeled.

3.5 Existing Controls and Security Devices.

Existing controls and devices which are to be reused must each be tested and calibrated for proper operation. Any existing controls which are to be reused and are found to be defective requiring replacement will be noted to the Owner. The Owner will be responsible for all material and labor costs associated with their repair.

3.6 Location

3.6.1 The drawings depict approximate location of mechanical/electrical equipment and associated devices. All mounting surfaces, locations and distances are to be field verified and included in the base bid quotation. No changes in the contract amount will be allowed for variances in drawings and actual dimensions.

3.6.2 Space humidity or temperature sensors will be mounted away from machinery generating heat, direct light and diffuser air streams.

3.6.3 Card readers will be mounted on the wall adjacent to the door being controlled.

3.6.4 Outdoor air sensors will be mounted on the north building face directly in the outside air. Install these sensors such that the effects of heat radiated from the building or sunlight is minimized.

3.6.5 Field enclosures shall be located immediately adjacent to the controller panel(s) to which it is being interfaced.

## 4 Software Installation

4.1 General.

The Contractor shall provide all labor necessary to install, initialize, start-up and debug all system software as described in this section. This includes any operating system software or other third party software necessary for successful operation of the system.

4.2 Database Configuration.

The Contractor will provide all labor to configure those portions of the database that are required by the points list and sequence of operation.

4.3 Color Graphic Displays.

Unless otherwise directed by the owner, the Contractor will provide color graphic displays as depicted in the project drawings for each system and floor plan. For each system or floor plan, the display shall contain the associated points identified in the point list and allow for setpoint changes as required by the owner.

4.4 Reports.

The Contractor will configure a minimum of 6 HVAC reports for the owner as listed below:

- Central Plant Status Report
- Air Handler Status Report
- VAV Status Report
- Space Temperature Report
- Specialty Equipment Status Report

The Contractor will also configure a minimum of 10 Security reports for the owner as listed below:

- Access Events, by time, by department, by door
- Alarm Events, by date and by priority
- Personnel, by name, by department, by card number, by expiration status
- Door Status
- Area/Door/personnel cross reference reports

4.5 Documentation

As built software documentation will include the following:

- Descriptive point lists
- Application program listing
- Application programs with comments.
- Printouts of all reports.
- Alarm list.
- Printouts of all graphics

## 5 Commissioning and System Startup

5.1 Point to Point Checkout.

Each I/O device (both field mounted as well as those located in FIPs) shall be inspected and verified for proper installation and functionality. A checkout sheet itemizing each device shall be filled out, dated and approved by the Project Manager for submission to the owner or owner's representative.

5.2 Controller and Workstation Checkout.

A field checkout of all controllers and front end equipment (computers, printers, modems, etc.) shall be conducted to verify proper operation of both hardware and software. A checkout sheet itemizing each device and a description of the associated tests shall be prepared and submitted to the owner or owner's representative by the completion of the project.

5.3 System Acceptance Testing

5.3.1 All application software will be verified and compared against the sequences of operation. Control loops will be exercised by inducing a setpoint shift of at least 10% and observing whether the system successfully returns the process variable to setpoint. Record all test results and attach to the Test Results Sheet.

5.3.2 Test each alarm in the system and validate that the system generates the appropriate alarm message, that the message appears at all prescribed destinations (workstations or printers), and that any other related actions occur as defined (i.e. graphic panels are invoked, reports are generated, etc.). Submit a Test Results Sheet to the owner.

5.3.3 Perform an operational test of each unique graphic display and report to verify that the item exists, that the appearance and content are correct, and that any special features work as intended. Submit a Test Results Sheet to the owner.

5.3.4 The IBAS contractor shall commission and set in operating condition all major equipment and systems, such as the chilled water, hot water and all air handling systems, in the presence of the equipment manufacturer's representatives, as applicable, and the Owner and Architect's representatives.

5.3.5 Perform an operational test of each third party interface that has been included as part of the automation system. Verify that all points are properly polled, that alarms have been configured, and that any associated graphics and reports have been completed. If the interface involves a file transfer over Ethernet, test any logic that controls the transmission of the file, and verify the content of the specified information.

5.4 Successful completion of the system test shall constitute the beginning of the warranty period. A written report will be submitted to the owner indicating that the installed system functions in accordance with the plans and specifications.

5.5 The IBAS Contractor shall provide all manpower and engineering services required to assist the HVAC Contractor and Balancing Contractor in testing, adjusting, and balancing all systems in the building. The IBAS Contractor shall have a trained technician available on request during the balancing of the systems. The IBAS Contractor shall coordinate all requirements to provide a complete air balance with the Balancing Contractor and shall include all labor and materials in his contract.

5.6 VAV Box Control

- The VAV box will consist of reheat coil were indicated on the drawings, inlet velocity sensor, and damper. The ATC contractor shall provide all necessary controls including heating valve, damper actuator, VAV controller, and Space Sensor.
- The VAV box controller shall be equipped with an integrated air velocity transducer and a motorized bi-directional actuator. Controller shall also include hardware for mounting on a standard VAV box damper shaft. VAV controller shall be interlocked with the room occupancy sensor furnished and installed by the IBAS contractor.
- VAV reheat coil were indicated on the control drawing, shall have heating valve that is being controller by the VAV box controller.
- As the space temperature decreases below space temperature setpoint, the controller shall modulate to its adjustable minimum CFM position. A further drop in space temperature, the heating valve shall modulate open as controlled by the Space Sensor. As the space temperature increases above the space setpoint, the controller will modulate the heating valve to the closed position. On a further increase in room temperature, the controller will modulate from the minimum CFM setting to the maximum setting. On a drop in space temperature, the temperature shall reverse.
- During the occupied periods anytime the room occupancy sensor is in the unoccupied mode the VAV box damper shall be reset to 10% (adj.) of maximum flow rate.
- In the unoccupied mode the room occupancy sensors shall also be used for the intrusion system. Any time the building intrusion system is on, the room occupancy sensor and the hallway sensors as shown on the security drawings shall provide input back into the intrusion system.

DDC Point List (At a Minimum)

- AO – Reheat Control Valve
- AO – Radiant Ceiling Panel Control Valve
- AI – Space Temperature

- AI – Actual CFM
- DI – Occupancy Sensor
- AO – VAV Box Damper Position
- AI – VAV Discharge Air Temperature

5.7 Freezer/Cooler Alarm

The DDC system shall be alarmed anytime the temperature rises above 20°F (adj.) on the freezer and 40°F (adj.) on the cooler.

Point List

DI – Freezer
DI – Cooler

5.8 Bio Hazard System Override

- ATC contractor shall furnish and install one key locking switch and push to test pilot light to be located in the Principal's Office.

- In the auto position the DDC system shall function as normal design.

- When the switch is in the emergency position the pilot light shall light, DDC system shall be alarmed, all outside air intake dampers shall be positioned closed, exhaust fans shall be de-energized, and HVAC system shall be indexed to the unoccupied cycle.

Point List

AI – Emergency Position
DO – Unoccupied Cycle
DO – Exhaust Fans
DO – Outside Air Damper

**PREVAILING WAGES**

A. In any Agreement entered into pursuant to this **advertisement**, the **Contractor** shall comply with the provisions of the PREVAILING WAGE LAW.

   The **Contractor** will pay the latest prevailing wages and fringe benefits for all Work as required by **State of Michigan/Public Act 166 dated 1965 as amended. The prevailing wage and fringe benefit rates are included immediately behind this Section. NOTE: IN MICHIGAN, THE OWNER PROVIDES THE CURRENT PREVAILING WAGE (90 DAY DOCUMENT).**

B. Additionally, **Contractor** is required to comply with all other provisions of the governing prevailing wage law, and shall ensure its Subordinate Parties' compliance therewith.

C. Each **Contractor** may be required to submit certified weekly payrolls to **Troy School District** at no charge on monthly bases, and may be required to obtain certified weekly payrolls from its Subordinate Parties that are subject to the governing prevailing wage law.

D. **Contractor shall** furnish any and all information that may be requested by **Troy School District,** to include in its certified payroll, and shall submit to an independent audit (if requested) of all its books and records for the purpose of verifying that is complying with all applicable prevailing wage statutes and ordinances. If the Department of Consumer and Industry Services determines that **Contractor** is in violation of the Act, that will constitute a material breach of contract, which shall entitle **Troy School District** to exercise any or all of the rights and remedies set forth in the Contract Documents or under applicable law. The **Contractor** shall ensure that this provision is also included in all of its contracts with its Subordinate Parties that are subject to the prevailing wage law.

E. The **Contractor** shall be financially responsible for the payment of prevailing wages by all Subordinate Parties that are subject to the prevailing wage law for Work on the Project.

F. If there is a dispute between any **Contractor** and the unions, the **Contractor** will be required to meet with **Troy School District** and the Union involved to try and resolve the issue.

G. Because Work on the Project is covered by the Michigan Prevailing Wage Act ("Act"), the **Contractor** and its subcontractors and other Subordinate Parties that are governed by the prevailing wage law shall pay all hours at the prevailing wage rates at the applicable hourly rate; no Work performed by or on behalf of the **Contractor** on this Project will be paid on a lump sum basis or a piece rate basis in violation of the Act.

H. The **Contractor** will pay its workers at wage and fringe benefit rates consistent with the Act regardless of whether the workers are classified as employees or independent contractors.

I. The **Contractor** shall not misclassify any work assignments, but shall in each and every case follow proper jurisdictional assignments in compliance with the Act.

J. The **Contractor** shall assure that any persons paid at apprentice rates under the Act are properly classified as apprentices by actual participation in a BAT certified program or as may otherwise be permitted by the Act.

STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF LABOR & ECONOMIC GROWTH
LANSING

ROBERT W. SWANSON
DIRECTOR

**REQUIREMENTS OF**
**MICHIGAN PUBLIC ACT 166 OF 1965, PREVAILING WAGES ON STATE PROJECTS**

The Michigan Department of Labor & Economic Growth determines prevailing rates pursuant to the Prevailing Wage Law, Act 166, P.A. of 1965. The purpose of establishing prevailing rates is to provide rates of pay for workers on construction projects for which the state or a school district is the contracting agent and which is financed or financially supported by the state. By law, prevailing rates are compiled from the rates contained in collectively bargained agreements which cover the locations of the state projects. The attached prevailing rates provide an hourly rate which INCLUDES wage and fringe benefit totals for designated construction mechanic classifications. The overtime rates also include wage and fringe benefit totals. Please pay special attention to the overtime and premium pay requirements. The prevailing rate may be satisfied by payment in cash or payment in cash and credit for fringe benefits paid in cash or on behalf of a worker or fringe benefits provided to a worker.

**State of Michigan responsibilities under the law:**

- The department establishes the prevailing rate for each classification of construction mechanic ***requested by a contracting agent*** prior to contracts being let out for bid on a state project.

**Contracting agent responsibilities under the law:**

- If a contract is not awarded or construction does not start within 90 days of the date of the issuance of rates, a re-determination of rates must be requested by the contracting agent.
- Rates for classifications needed but not provided on the Prevailing Rate Schedule, including rates for registered apprentices, ***must*** be obtained ***prior*** to contracts being let out for bid on a state project.
- The contracting agent, by written notice to the contractor and the sureties of the contractor known to the contracting agent, may terminate the contractor's right to proceed with that part of the contract, for which less than the prevailing rates of wages and fringe benefits have been or will be paid, and may proceed to complete the contract by separate agreement with another contractor or otherwise, and the original contractor and his sureties shall be liable to the contracting agent for any excess costs occasioned thereby.

**Contractor responsibilities under the law:**

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.
- Every contractor and subcontractor shall keep an accurate record showing the name and occupation of and the actual wages and benefits paid to each construction mechanic employed by him in connection with said contract. This record shall be available for reasonable inspection by the contracting agent or the department.
- Each contractor or subcontractor is separately liable for the payment of the prevailing rate to its employees.
- The prime contractor is responsible for advising all subcontractors of the requirement to pay the prevailing rate prior to commencement of work.
- The prime contractor is secondarily liable for payment of prevailing rates that are not paid by a subcontractor.
- A construction mechanic shall only be paid the apprentice rate if registered with the United States Department of Labor, Bureau of Apprenticeship and Training and the rate is included in the contract.

**Enforcement:**

A person who has information of an alleged prevailing wage violation on a state project may file a complaint with the Wage and Hour Division. The department will investigate and attempt to resolve the complaint informally.

Executive Order Number 2003-001 requires that contractors doing business with the State of Michigan be in compliance with state and federal law. A violation of Act 166 of 1965, as amended, the Prevailing Wages on State Projects act or Act 390 of 1978, as amended, the Payment of Wages and Fringe Benefits Act, may result in the debarment of a contractor from being awarded a contract for the provision of goods and services to the State of Michigan for a period of up to eight (8) years.

**State of Michigan**
**Department of Labor and Economic Growth**

**Wage and Hour Division**
7150 Harris Drive
PO Box 30476
Lansing, MI 48909-7976
Telephone: 517-322-1825
Fax: 517-322-6352
www.michigan.gov/wagehour

**Official Request** 1241
**Requestor:** TROY SCHOOL DISTRICT

**Project Description:** SECURITY SYSTEM INSTALLATION
**Project Number:** NEW BAKER MIDDLE SCHOOL

# Oakland County

## Official 2006 Prevailing Wage Rates for State Funded Projects

**Issue Date:** 11/16/2006
**Contract must be awarded by** 2/14/2007



| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Asbestos & Lead Abatement Laborer** | | | | | | |
| Asbestos & Lead Abatement Laborer | | MLDC | $31.30 | $41.83 | $52.35 | H H H X X X X D Y |
| **Asbestos & Lead Abatement, Hazardous Material Handler** | | | | | | |
| Asbestos and Lead Abatement, Hazardous Material Handler | | AS207 | $30.00 | $41.55 | $53.10 | X X X X X X X D Y |
| **Boilermaker** | | | | | | |
| Boilermaker | | BO169 | $48.71 | $68.13 | $87.54 | H H D H D D D D Y |
| | **Apprentice Rates:** | | | | | |
| | 1st 6 months | | $37.07 | $50.67 | $64.26 | |
| | 2nd 6 months | | $38.03 | $52.10 | $66.18 | |
| | 3rd 6 months | | $39.00 | $53.56 | $68.12 | |
| | 4th 6 months | | $39.97 | $55.02 | $70.06 | |
| | 5th 6 months | | $40.58 | $56.11 | $71.64 | |
| | 6th 6 months | | $42.88 | $59.38 | $75.88 | |
| | 7th 6 months | | $44.83 | $62.31 | $79.78 | |
| | 8th 6 months | | $46.77 | $65.21 | $83.66 | |
| **Bricklayer** | | | | | | |
| Bricklayer, stone mason, pointer, cleaner, caulker | | BR1 | $46.06 | $69.09 | $92.12 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | | |
| | First 6 months | | $29.18 | $43.77 | $58.36 | |
| | 2nd 6 months | | $31.01 | $46.51 | $62.02 | |
| | 3rd 6 months | | $32.82 | $49.23 | $65.64 | |
| | 4th 6 months | | $34.64 | $51.96 | $69.28 | |
| | 5th 6 months | | $36.47 | $54.71 | $72.94 | |
| | 6th 6 months | | $38.28 | $57.43 | $76.56 | |



## Official Rate Schedule

**Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.**

# Official 2006 Prevailing Wage Rates for State Funded Projects

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| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| **Carpenter** | | | | | |
| Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate) | CA1045 | $40.22 | $56.42 | $72.61 | H H H H D D D D N |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $20.93 | $25.25 | $31.05 | |
| 2nd 6 months | | $24.02 | $31.26 | $39.07 | |
| 3rd 6 months | | $25.64 | $33.59 | $42.17 | |
| 4th 6 months | | $27.26 | $35.95 | $45.33 | |
| 5th 6 months | | $28.87 | $38.28 | $48.43 | |
| 6th 6 months | | $30.50 | $40.64 | $51.57 | |
| 7th 6 months | | $32.11 | $42.96 | $54.67 | |
| 8th 6 months | | $33.73 | $45.30 | $57.79 | |
| Carpenter, piledriver | CA687Z1 | $44.37 | $62.97 | $81.56 | H H D H D D D D Y |
| **Apprentice Rates:** | | | | | |
| 1st Year | | $27.63 | $37.85 | $48.08 | |
| 3rd 6 months | | $29.49 | $40.65 | $51.80 | |
| 4th 6 months | | $31.34 | $43.42 | $55.50 | |
| 5th 6 months | | $33.21 | $46.23 | $59.24 | |
| 6th 6 months | | $35.08 | $49.03 | $62.98 | |
| 7th 6 months | | $36.92 | $51.79 | $66.66 | |
| 8th 6 months | | $38.80 | $54.61 | $70.42 | |
| **Cement Mason** | | | | | |
| Cement Mason | CE514 | $41.37 | $57.06 | $73.78 | H H D H H H H D N |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $23.90 | $31.75 | $40.11 | |
| 2nd 6 months | | $25.62 | $34.26 | $43.45 | |
| 3rd 6 months | | $29.06 | $39.27 | $50.13 | |
| 4th 6 months | | $32.52 | $44.30 | $56.83 | |
| 5th 6 months | | $34.24 | $46.80 | $60.17 | |
| 6th 6 months | | $37.68 | $51.81 | $66.85 | |
| **Drywall** | | | | | |
| Drywall Taper | PT-22-D | $38.45 | $50.90 | $63.35 | H H D H D D D D N |
| **Apprentice Rates:** | | | | | |
| First 3 months | | $26.00 | $32.23 | $38.45 | |
| Second 3 months | | $28.49 | $35.96 | $43.43 | |
| Second 6 months | | $30.98 | $39.69 | $48.41 | |
| Third 6 months | | $33.47 | $43.43 | $53.39 | |
| 4th 6 months | | $34.71 | $45.29 | $55.87 | |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

## Official Rate Schedule

**Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.**

# Official 2006 Prevailing Wage Rates for State Funded Projects

**Issue Date:** 11/16/2006
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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Electrician, Inside wireman** | | | | | | |
| Electrician, Inside Wireman | | EC-58-IW | $46.88 | $64.00 | $81.13 | H H H H H H H D N |
| | **Apprentice Rates:** | | | | | |
| | 0-1000 hours | | $26.33 | $33.18 | $40.03 | |
| | 1000-2000 hours | | $28.04 | $35.75 | $43.45 | |
| | 2000-3500 hours | | $29.75 | $38.31 | $46.87 | |
| | 3500-5000 hours | | $31.47 | $40.90 | $50.31 | |
| | 5000-6500 hours | | $34.89 | $46.03 | $57.15 | |
| | 6500-8000 hours | | $38.32 | $51.17 | $64.01 | |
| **Elevator Constructor** | | | | | | |
| Elevator Constructor<br>Elevator Constructor | | EL 36 | $47.71 | | $81.45 | D D D D D D D D Y |
| | **Apprentice Rates:** | | | | | |
| | 1st Year Apprentice | | $31.14 | | $49.70 | |
| | 2nd Year Apprentice | | $34.82 | | $56.75 | |
| | 3rd Year Apprentice | | $36.66 | | $60.28 | |
| | 4th Year Apprentice | | $40.34 | | $67.33 | |
| **Glazier** | | | | | | |
| Glazier | | GL-357 | $41.56 | $55.41 | | H H H H H H H H Y |
| | **Apprentice Rates:** | | | | | |
| | 1st 6 months | | $28.36 | $35.29 | | |
| | 2nd 6 months | | $29.82 | $37.44 | | |
| | 3rd 6 months | | $32.72 | $41.72 | | |
| | 4th 6 months | | $34.18 | $43.87 | | |
| | 5th 6 months | | $35.64 | $46.03 | | |
| | 6th 6 months | | $37.09 | $48.17 | | |
| | 7th 6 months | | $38.54 | $50.31 | | |
| | 8th 6 months | | $41.46 | $54.62 | | |
| **Heat and Frost Insulator and Asbestos Worker** | | | | | | |
| Heat and Frost Insulators and Asbestos Workers | | AS25 | $42.80 | $56.56 | $70.32 | H H H H H H H D Y |
| | **Apprentice Rates:** | | | | | |
| | 1st Year | | $25.05 | $32.62 | $40.19 | |
| | 2nd Year | | $32.83 | $41.78 | $50.72 | |
| | 3rd Year | | $34.54 | $44.17 | $53.80 | |
| | 4th Year | | $37.30 | $48.31 | $59.32 | |
| **Industrial Door** | | | | | | |
| Industrial Door erection & construction | | IR-25-STR-D | $33.32 | $44.57 | $55.82 | H H D H H H D D Y |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

## Official Rate Schedule

**Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.**

# Official 2006 Prevailing Wage Rates for State Funded Projects

**Issue Date:** 11/16/2006
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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Ironworker** | | | | | | |
| Fence Erecting | | IR-25-F | $38.28 | $57.26 | $76.23 | H H D H H H D D Y |
| Glazing | | IR-25-GZ1 | $46.57 | $69.69 | $92.81 | H H D H H H D D Y |
| Mesh Iron Work | | IR-25-MR | $41.22 | $59.07 | $76.92 | H H D H D D D D N |
| Pre-engineered Metal Work | | IR-25-PE-Z1&Z2 | $39.23 | $49.73 | $60.23 | H H H X X X X D Y |
| | **Apprentice Rates:** | | | | | |
| | 1st Level | | $24.11 | $30.04 | $35.98 | |
| | 2nd Level | | $26.00 | $32.79 | $39.59 | |
| | 3rd Level | | $27.87 | $35.51 | $43.15 | |
| | 4th Level | | $29.74 | $38.23 | $46.71 | |
| | 5th Level | | $31.59 | $40.92 | $50.24 | |
| | 6th Level | | $33.48 | $43.66 | $53.84 | |
| Reinforced Iron Work | | IR-25-RF | $46.45 | $66.75 | $87.05 | H H D H D D D D N |
| Rigging Work | | IR-25-RIG | $50.42 | $75.53 | $100.64 | H H H H H H H D N |
| Siding & Decking | | IR-25-SD | $43.31 | $64.80 | $86.29 | H H D H H H D D Y |
| Structural, ornamental, conveyor, welder and pre-cast Apprentice rates apply to structural, converyor, fence, glazing, reinforced, rigging, & siding decking | | IR-25-STR | $50.55 | $75.66 | $100.77 | H H D H H H D D Y |
| | **Apprentice Rates:** | | | | | |
| | Level 1 | | $25.45 | $38.01 | $50.57 | |
| | Level 2 | | $27.96 | $41.78 | $55.59 | |
| | Level 3 | | $30.47 | $45.55 | $60.61 | |
| | Level 4 | | $32.98 | $49.31 | $65.63 | |
| | Level 5 | | $35.49 | $53.07 | $70.65 | |
| | Level 6 | | $38.01 | $56.85 | $75.69 | |
| | Level 7 | | $40.50 | $60.59 | $80.67 | |
| | Level 8 | | $43.02 | $64.37 | $85.71 | |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

## Official Rate Schedule

**Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing wage and fringe benefit rates prescribed in a contract.**

| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| **Laborer** | | | | | |
| Construction Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Demolition Laborer | L1076-A-A | $36.48 | $51.89 | $67.29 | H H D H D D D D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $30.91 | $43.53 | $56.15 | |
| 1,001-2,000 work hours | | $32.02 | $45.20 | $58.37 | |
| 2,001-3,000 work hours | | $33.14 | $46.88 | $60.61 | |
| 3,001-4,000 work hours | | $35.37 | $50.23 | $65.07 | |
| Signal man (on sewer & caisson work); air,electric or gasoline tool operator (including concrete vibrator operator,acetylene torch & air hammer operator); scaffold builder, caisson worker | L1076-A-B | $36.74 | $52.28 | $67.81 | H H D H D D D D Y |
| Lansing Burner, Blaster & Powder Man | L1076-A-C | $37.23 | $53.01 | $68.79 | H H D H D D D D Y |
| Furnance battery heater tender, burning bar & oxy-acetylene gun, expediter man, top man and/or bottom man (blast furnace work) | L1076-A-D | $36.98 | $52.64 | $68.29 | H H D H D D D D Y |
| Cleaner/ sweeper laborer, furniture laborer | L1076-A-E | $31.03 | $43.71 | $56.39 | H H D H D D D D Y |
| Plasterer Tender, Plastering Machine Operator | LPT-1 | $37.86 | $53.96 | $70.05 | H H D H D D D D N |
| **Apprentice Rates:** | | | | | |
| 0 - 1,000 hours | | $30.91 | $43.53 | $56.15 | |
| 1,001 - 2,000 hours | | $32.02 | $45.20 | $58.37 | |
| 2,001 - 3,000 hours | | $33.14 | $46.88 | $60.61 | |
| 3,001 - 4,000 hours | | $35.37 | $50.23 | $65.07 | |
| **Laborer - Hazardous** | | | | | |
| Class A Laborer - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulations; or a laborer performing work in conjunction with the removal, handling, or containment of hazardous waste substances when used of personal protective equipment level "D" is required. | LHAZ-Z2-A | $35.36 | $50.45 | $65.53 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $29.86 | $42.20 | $54.53 | |
| 1,001-2,000 work hours | | $30.96 | $43.85 | $56.73 | |
| 2,001-3,000 work hours | | $32.06 | $45.50 | $58.93 | |
| 3,001-4,000 work hours | | $34.26 | $48.80 | $63.33 | |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
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## Official Rate Schedule

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| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| Class B Laborer - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required. | LHAZ-Z2-B | $36.36 | $51.95 | $67.53 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $30.60 | $43.31 | $56.01 | |
| 1,001-2,000 work hours | | $31.76 | $45.05 | $58.33 | |
| 2,001-3,000 work hours | | $32.91 | $46.78 | $60.63 | |
| 3,001-4,000 work hours | | $35.21 | $50.22 | $65.23 | |
| **Laborer Underground - Tunnel, Shaft & Caisson** | | | | | |
| Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman. | LAUCT-Z1-1 | $31.54 | $42.13 | $52.71 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.75 | $34.94 | $43.13 | |
| 1,001-2,000 work hours | | $27.71 | $36.38 | $45.05 | |
| 2,001-3,000 work hours | | $28.66 | $37.81 | $46.95 | |
| 3,001-4,000 work hours | | $30.58 | $40.69 | $50.79 | |
| Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder. | LAUCT-Z1-2 | $31.65 | $42.29 | $52.93 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.83 | $35.06 | $43.29 | |
| 1,001-2,000 work hours | | $27.79 | $36.50 | $45.21 | |
| 2,001-3,000 work hours | | $28.76 | $37.95 | $47.15 | |
| 3,001-4,000 work hours | | $30.69 | $40.85 | $51.01 | |
| Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, concrete shoveler, conveyor man, floor man, gasoline and electric tool operator, gunnite man, grout operator, welder, heading dinky man, inside lock tender, pea gravel operator, pump man, outside lock tender, scaffold man, top signal man, switch man, track man, tugger man, utility man, vibrator man, winch operator, pipe jacking man, wagon drill and air track operator and concrete saw operator (under 40 h.p.). | LAUCT-Z1-3 | $31.71 | $42.38 | $53.05 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.87 | $35.12 | $43.37 | |
| 1,001-2,000 work hours | | $27.84 | $36.57 | $45.31 | |
| 2,001-3,000 work hours | | $28.81 | $38.03 | $47.25 | |
| 3,001-4,000 work hours | | $30.74 | $40.93 | $51.11 | |

Official Request #: 1241
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## Official Rate Schedule

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| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man. | LAUCT-Z1-4 | $31.89 | $42.65 | $53.41 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $27.01 | $35.33 | $43.65 | |
| 1,001-2,000 work hours | | $27.99 | $36.80 | $45.61 | |
| 2,001-3,000 work hours | | $28.96 | $38.25 | $47.55 | |
| 3,001-4,000 work hours | | $30.91 | $41.18 | $51.45 | |
| Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars) | LAUCT-Z1-5 | $32.14 | $43.03 | $53.91 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $27.20 | $35.61 | $44.03 | |
| 1,001-2,000 work hours | | $28.19 | $37.10 | $46.01 | |
| 2,001-3,000 work hours | | $29.17 | $38.57 | $47.97 | |
| 3,001-4,000 work hours | | $31.15 | $41.54 | $51.93 | |
| Class VI - Dynamite man and powder man. | LAUCT-Z1-6 | $32.47 | $43.52 | $54.57 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $27.45 | $35.99 | $44.53 | |
| 1,001-2,000 work hours | | $28.45 | $37.49 | $46.53 | |
| 2,001-3,000 work hours | | $29.45 | $38.99 | $48.53 | |
| 3,001-4,000 work hours | | $31.47 | $42.02 | $52.57 | |
| Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones. | LAUCT-Z1-7 | $25.75 | $33.44 | $41.13 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $22.41 | $28.43 | $34.45 | |
| 1,001-2,000 work hours | | $23.07 | $29.42 | $35.77 | |
| 2,001-3,000 work hours | | $23.74 | $30.43 | $37.11 | |
| 3,001-4,000 work hours | | $25.08 | $32.43 | $39.79 | |
| **Landscape Laborer** | | | | | |
| Landscape specialist includes; air, gas, and diesel equipment operator, lawn sprinkler installer. | LLAN-Z1-A | $23.38 | $32.46 | $41.54 | X X H X X X H D Y |
| Landscape laborer; small power tool operator, lawn sprinkler installer helper, material mover, truck driver. | LLAN-Z1-B | $19.16 | $26.13 | $33.10 | X X H X X X H D Y |

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## Official Rate Schedule

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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Marble Finisher** | | | | | | |
| Marble Finisher | | TT32-MF | $37.17 | $46.87 | $56.57 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | | |
| | Level 1 | | $18.16 | $23.25 | $28.35 | |
| | Level 2 | | $19.18 | $24.79 | $30.39 | |
| | Level 3 | | $23.19 | $29.47 | $35.75 | |
| | Level 4 | | $24.45 | $31.36 | $38.27 | |
| | Level 5 | | $25.74 | $32.85 | $39.97 | |
| | Level 6 | | $27.13 | $34.62 | $42.10 | |
| | Level 7 | | $28.57 | $36.10 | $43.63 | |
| | Level 8 | | $29.85 | $37.62 | $45.40 | |
| **Marble Mason** | | | | | | |
| Marble Mason | | TT32-MM | $42.76 | $55.51 | $68.25 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | | |
| | Level 1 | | $23.56 | $30.36 | $37.16 | |
| | Level 2 | | $26.21 | $33.74 | $41.28 | |
| | Level 3 | | $28.90 | $36.71 | $44.51 | |
| | Level 4 | | $31.20 | $39.83 | $48.46 | |
| | Level 5 | | $33.26 | $42.19 | $51.12 | |
| | Level 6 | | $36.52 | $47.03 | $57.53 | |
| | Level 7 | | $37.33 | $48.11 | $58.89 | |
| | Level 8 | | $38.14 | $49.33 | $60.51 | |
| **Operating Engineer** | | | | | | |
| Crane with boom & jib or leads 120' or longer | | EN-324-A120 | $47.81 | $64.26 | $80.70 | H H D H D D D D Y |
| Crane with boom & jib or leads 140' or longer | | EN-324-A140 | $48.63 | $65.49 | $82.34 | H H D H D D D D Y |
| Crane with boom & jib or leads 220' or longer | | EN-324-A220 | $48.93 | $65.94 | $82.94 | H H D H D D D D Y |
| Crane with boom & jib or leads 300' or longer | | EN-324-A300 | $50.43 | $68.19 | $85.94 | H H D H D D D D Y |
| Crane with boom & jib or leads 400' or longer | | EN-324-A400 | $51.93 | $70.44 | $88.94 | H H D H D D D D Y |
| Compressor or welding machine | | EN-324-CW | $36.96 | $47.98 | $59.00 | H H D H D D D D Y |
| Forklift, lull, extend-a-boom forklift | | EN-324-FL | $44.27 | $58.95 | $73.62 | H H D H D D D D Y |
| Fireman or oiler | | EN-324-FO | $35.93 | $46.44 | $56.94 | H H D H D D D D Y |
| Regular crane, job mechanic, concrete pump | | EN-324-RC | $46.95 | $62.97 | $78.98 | H H D H D D D D Y |

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|---|---|---|---|---|---|
| Regular engineer, hydro-excavator, remote controlled concrete breaker | EN-324-RE | $45.98 | $61.51 | $77.04 | H H D H D D D D Y |
| **Apprentice Rates:** | | | | | |
| Period 1 | | $36.47 | $47.34 | $58.22 | |
| Period 2 | | $38.02 | $49.67 | $61.32 | |
| Period 3 | | $39.57 | $52.00 | $64.42 | |
| Period 4 | | $41.12 | $54.32 | $67.52 | |
| Period 5 | | $42.68 | $56.66 | $70.64 | |
| Period 6 | | $44.23 | $58.99 | $73.74 | |
| **Operating Engineer - Marine Construction** | | | | | |
| Diver/Wet Tender, Engineer (hydraulic dredge) | GLF-1 | $47.11 | $61.89 | $76.66 | X X H H H H H D Y |
| Holidays paid at $91.44 per hour | | | | | |
| *Subdivision of county* all Great Lakes, islands therein, & connecting & tributary waters | | | | | |
| Crane/Backhoe Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender | GLF-2 | $45.61 | $59.64 | $73.66 | X X H H H H H D Y |
| Holidays paid $87.69 per hour | | | | | |
| *Subdivision of county* All Great Lakes, islands therein, & connecting & tributary waters | | | | | |
| Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more), Tug/Launch Operator, Loader, Dozer and like equipment on Barge, Breakwater Wall, Slip/Doc or Scow, Deck Machinery | GLF-3 | $42.56 | $55.06 | $67.56 | X X H H H H H D Y |
| Holidays paid at $80.06 per hour | | | | | |
| *Subdivision of county* All Great Lakes, islands therein, & connecting & tributary waters | | | | | |
| Deck Equipment Operator, (Machineryman/Fireman), (4 equipment units or more), Deck Hand, Deck Engineer, & Crane Maintenance 50 ton capacity and under or Backhoe weighing 115,000 lbs or less, Assistant Tug Operator | GLF-4 | $38.36 | $48.76 | $59.16 | X X H H H H H D Y |
| Holidays paid at $69.56 per hour | | | | | |
| *Subdivision of county* All Great Lakes, islands therein, & connecting & tributary waters | | | | | |

| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| **Operating Engineer Hazardous Waste Class I** | | | | | |
| Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection. | EN-324-HWCI-Z1A | $44.87 | $60.16 | $75.50 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $35.20 | $45.96 | $56.71 | |
| 2nd 6 months | | $36.74 | $48.27 | $59.79 | |
| 3rd 6 months | | $38.28 | $50.58 | $62.87 | |
| 4th 6 months | | $39.81 | $52.87 | $65.93 | |
| 5th 6 months | | $41.35 | $55.19 | $69.01 | |
| 6th 6 months | | $42.88 | $57.48 | $72.07 | |
| Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing. | EN-324-HWCI-Z1B | $43.91 | $58.80 | $73.69 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $34.53 | $44.95 | $55.37 | |
| 2nd 6 months | | $36.02 | $47.19 | $58.35 | |
| 3rd 6 months | | $37.51 | $49.42 | $61.33 | |
| 4th 6 months | | $39.00 | $51.66 | $64.31 | |
| 5th 6 months | | $40.49 | $53.89 | $67.29 | |
| 6th 6 months | | $41.98 | $56.13 | $70.27 | |
| Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWCI-Z1D | $42.61 | $56.85 | $71.09 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $33.62 | $43.59 | $53.55 | |
| 2nd 6 months | | $35.05 | $45.74 | $56.41 | |
| 3rd 6 months | | $36.47 | $47.87 | $59.25 | |
| 4th 6 months | | $37.90 | $50.01 | $62.11 | |
| 5th 6 months | | $39.31 | $52.12 | $64.93 | |
| 6th 6 months | | $40.74 | $54.27 | $67.79 | |
| Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWCI-Z1DCL | $42.36 | $56.47 | $70.58 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 1st 6 months | | $33.45 | $43.33 | $53.21 | |
| 2nd 6 months | | $34.85 | $45.43 | $56.01 | |
| 3rd 6 months | | $36.26 | $47.54 | $58.83 | |
| 4th 6 months | | $37.68 | $49.68 | $61.67 | |
| 5th 6 months | | $39.09 | $51.80 | $64.49 | |
| 6th 6 months | | $40.50 | $53.90 | $67.31 | |

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| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| **Operating Engineer Hazardous Waste Class II** | | | | | |
| Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection. | EN-324-HWCII-Z1A | $40.64 | $53.88 | $67.13 | H H H H H H H D Y |
| Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing. | EN-324-HWCII-Z1B | $39.68 | $52.45 | $65.22 | H H H H H H H D Y |
| Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWCII-Z1D | $38.38 | $50.50 | $62.62 | H H H H H H H D Y |
| Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWCII-Z1DCL | $38.14 | $50.13 | $62.12 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 140' or longer** | | | | | |
| Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection. | EN-324-HW140-Z1A | $47.51 | $64.14 | $80.80 | H H H H H H H D Y |
| Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing. | EN-324-HW140-Z1B | $46.57 | $62.79 | $79.00 | H H H H H H H D Y |
| Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HW140-Z1D | $45.27 | $60.84 | $76.40 | H H H H H H H D Y |
| Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HW140-Z1DCL | $45.02 | $59.71 | $75.15 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 220' or longer** | | | | | |
| Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection. | EN-324-HW220-Z1A | $47.81 | $64.65 | $81.48 | H H H H H H H D Y |
| Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing. | EN-324-HW220-Z1B | $46.87 | $63.23 | $79.60 | H H H H H H H D Y |

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|---|---|---|---|---|---|
| Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HW220-Z1D | $45.57 | $61.28 | $77.00 | H H H H H H H D Y |
| Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HW220-Z1DCL | $45.32 | $60.90 | $76.49 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, and Concrete Pump with Boom Operator** | | | | | |
| Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWRC-Z1D | $43.58 | $58.30 | $73.02 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom** | | | | | |
| Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. | EN-324-HWRC-Z1DCL | $42.72 | $57.01 | $71.30 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with booms** | | | | | |
| Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing. | EN-324-HWRC-Z1B | $44.88 | $60.25 | $75.62 | H H H H H H H D Y |
| **Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operators and Concrete Pump with booms** | | | | | |
| Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection. | EN-324-HWRC-Z1A | $45.83 | $61.68 | $77.53 | H H H H H H H D Y |
| **Operating Engineer Steel Work** | | | | | |
| Crane w/ 120' boom or longer | EN-324-SW120 | $51.51 | $69.80 | $88.08 | H H D H H H D D Y |
| Crane w/ 120' boom or longer w/ Oiler | EN-324-SW120-O | $52.51 | $71.30 | $90.08 | H H D H H H D D Y |
| Crane w/ 140' boom or longer | EN-324-SW140 | $52.69 | $71.57 | $90.44 | H H D H H H D D Y |
| Crane w/ 140' boom or longer W/ Oiler | EN-324-SW140-O | $53.69 | $73.07 | $92.44 | H H D H H H D D Y |
| Boom & Jib 220' or longer | EN-324-SW220 | $52.96 | $71.97 | $90.98 | H H D H H H D D Y |
| Crane w/ 220' boom or longer w/ Oiler | EN-324-SW220-O | $53.96 | $73.47 | $92.98 | H H D H H H D D Y |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
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Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

## Official Rate Schedule

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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| Boom & Jib 300' or longer | | EN-324-SW300 | $54.46 | $74.22 | $93.98 | H H D H H H D D Y |
| Crane w/ 300' boom or longer w/ Oiler | | EN-324-SW300-O | $55.46 | $75.72 | $95.98 | H H D H H H D D Y |
| Boom & Jib 400' or longer | | EN-324-SW400 | $55.96 | $76.47 | $96.98 | H H D H H H D D Y |
| Crane w/ 400' boom or longer w/ Oiler | | EN-324-SW400-O | $56.96 | $77.97 | $98.98 | H H D H H H D D Y |
| Crane Operator & Job Mechanic | | EN-324-SWCO | $51.15 | $69.26 | $87.36 | H H D H H H D D Y |
| | **Apprentice Rates:** | | | | | |
| | 0-999 hours | | $40.04 | $52.72 | $65.39 | |
| | 1,000-1,999 hours | | $41.85 | $55.43 | $69.01 | |
| | 2,000-2,999 hours | | $43.66 | $58.14 | $72.63 | |
| | 3,000-3,999 hours | | $45.48 | $60.88 | $76.27 | |
| | 4,000-4,999 hours | | $47.28 | $63.58 | $79.87 | |
| | 5,000 hours | | $49.10 | $66.31 | $83.51 | |
| Crane w/ Oiler | | EN-324-SWCO-O | $52.15 | $70.76 | $89.36 | H H D H H H D D Y |
| Compressor or Welder Operator | | EN-324-SWCW | $43.70 | $58.08 | $72.46 | H H D H H H D D Y |
| Hoisting Operator | | EN-324-SWHO | $50.51 | $68.30 | $86.08 | H H D H H H D D Y |
| Oiler | | EN-324-SWO | $42.29 | $55.97 | $69.64 | H H D H H H D D Y |
| Tower Crane & Derrick where work is 50' or more above first level | | EN-324-SWTD50 | $52.24 | $70.89 | $89.54 | H H D H H H D D Y |
| Tower Crane & Derrick 50' or more w/ Oiler where work station is 50' or more above first level | | EN-324-SWTD50-O | $53.24 | $72.39 | $91.54 | H H D H H H D D Y |
| **Operating Engineer Underground** | | | | | | |
| Class I Equipment | | EN-324A1-UC1 | $42.37 | $56.45 | $70.54 | H H H H H H H D Y |
| | **Apprentice Rates:** | | | | | |
| | 0-999 hours | | $33.46 | $43.32 | $53.18 | |
| | 1,000-1,999 hours | | $34.88 | $45.45 | $56.02 | |
| | 2,000-2,999 hours | | $36.28 | $47.55 | $58.82 | |
| | 3,000-3,999 hours | | $37.68 | $49.65 | $61.62 | |
| | 4,000-4,999 hours | | $39.10 | $51.79 | $64.46 | |
| | 5,000-5,999 hours | | $40.51 | $53.90 | $67.28 | |
| Class II Equipment | | EN-324A1-UC2 | $37.89 | $49.74 | $61.59 | H H H H H H H D Y |

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|---|---|---|---|---|---|
| Class III Equipment | EN-324A1-UC3 | $37.16 | $48.64 | $60.12 | H H H H H H H D Y |
| Class IV Equipment | EN-324A1-UC4 | $36.59 | $47.79 | $58.99 | H H H H H H H D Y |
| Master Mechanic | EN-324A1-UMM | $42.62 | $56.83 | $71.05 | H H H H H H H D Y |
| **Painter** | | | | | |
| Painter (8 hours of repaint work performed on Sunday shall be paid time & one half rate) | PT-22-P | $38.01 | $50.24 | $62.47 | H H D H D D D D N |
| **Apprentice Rates:** | | | | | |
| First 6 months | | $25.78 | $31.89 | $38.01 | |
| Second 6 months | | $29.45 | $37.40 | $45.35 | |
| Third 6 months | | $30.67 | $39.23 | $47.79 | |
| Fourth 6 months | | $31.89 | $41.06 | $50.23 | |
| Fifth 6 months | | $33.12 | $42.91 | $52.69 | |
| Final 6 months | | $34.34 | $44.73 | $55.13 | |
| Sandblasting & spraywork performed, on highway bridges, overpases, tanks or steel, OR spraywork & sandblasting done with a scaffold height of 40' above the floor level | PT-22-S | $38.81 | $51.44 | $64.07 | H H D H D D D D N |
| **Pipefitter** | | | | | |
| Pipefitter | PF-636 | $51.46 | $66.44 | $81.41 | H H D H D D D D N |
| **Apprentice Rates:** | | | | | |
| 1st & 2nd periods | | $26.23 | $33.23 | $40.23 | |
| 3rd period | | $28.23 | $36.23 | $44.23 | |
| 4th period | | $29.48 | $38.11 | $46.73 | |
| 5th period | | $30.73 | $39.98 | $49.23 | |
| 6th period | | $31.98 | $41.85 | $51.73 | |
| 7th period | | $33.23 | $43.73 | $54.23 | |
| 8th period | | $34.23 | $45.23 | $56.23 | |
| 9th period | | $35.23 | $46.73 | $58.23 | |
| 10th period | | $36.66 | $48.87 | $61.09 | |

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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Plasterer** | | | | | | |
| Plasterer | | BR1P | $40.97 | $61.46 | $81.94 | H H H H H H H D N |
| | **Apprentice Rates:** | | | | | |
| | 1st 6 months | | $20.77 | $31.16 | $41.54 | |
| | 2nd 6 months | | $24.16 | $36.24 | $48.32 | |
| | 3rd 6 months | | $27.52 | $41.28 | $55.04 | |
| | 4th 6 months | | $30.88 | $46.32 | $61.76 | |
| | 5th 6 months | | $34.25 | $49.58 | $66.10 | |
| | 6th 6 months | | $37.61 | $56.42 | $75.22 | |
| Plasterer | | PL67 | $38.32 | $52.78 | $67.24 | H H H X D D D D N |
| | **Apprentice Rates:** | | | | | |
| | 1st 6 months | | $20.97 | $26.76 | $32.54 | |
| | 2nd 6 months | | $23.86 | $31.09 | $38.32 | |
| | 3rd 6 months | | $26.75 | $35.42 | $44.10 | |
| | 4th 6 months | | $29.64 | $39.76 | $49.88 | |
| | 5th 6 months | | $32.54 | $44.11 | $55.68 | |
| | 6th 6 months | | $35.43 | $48.44 | $61.46 | |
| **Plumber** | | | | | | |
| Plumber | | PL-98 | $49.58 | $67.10 | $82.61 | H H D H D D D D Y |
| | **Apprentice Rates:** | | | | | |
| | Period 1 | | $18.11 | $25.11 | $32.11 | |
| | Period 2 | | $20.30 | $28.39 | $36.49 | |
| | Period 3 | | $30.47 | $40.85 | $50.13 | |
| | Period 4 | | $31.16 | $41.89 | $51.51 | |
| | Period 5 | | $32.45 | $43.83 | $54.09 | |
| | Period 6 | | $33.73 | $45.75 | $56.65 | |
| | Period 7 | | $35.01 | $47.67 | $59.21 | |
| | Period 8 | | $36.31 | $49.61 | $61.81 | |
| | Period 9 | | $37.59 | $51.53 | $64.37 | |
| | Period 10 | | $38.87 | $53.45 | $66.93 | |

| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Roofer** | | | | | | |
| Commercial Roofer | | RO-149-WOM | $45.01 | $58.72 | $72.42 | H H D H H H D D N |
| Straight time is not to exceed ten (10) hours per day or forty (40) hours per week. | | | | | | |
| | **Apprentice Rates:** | | | | | |
| | Apprentice 1 | | $29.78 | $36.88 | $44.64 | |
| | Apprentice 2 | | $33.80 | $41.54 | $49.52 | |
| | Apprentice 3 | | $35.16 | $43.50 | $52.14 | |
| | Apprentice 4 | | $36.15 | $44.94 | $54.06 | |
| | Apprentice 5 | | $37.33 | $46.64 | $56.32 | |
| | Apprentice 6 | | $38.67 | $48.58 | $58.90 | |
| **Sheet Metal Worker** | | | | | | |
| Sheet Metal Worker | | SHM-80 | $51.82 | $69.04 | $86.25 | H H D H D D D D Y |
| | **Apprentice Rates:** | | | | | |
| | First Year | | $34.61 | $43.22 | $51.83 | |
| | Second Year | | $35.98 | $45.27 | $54.57 | |
| | Third Year | | $37.36 | $47.34 | $57.33 | |
| | Fourth Year | | $40.11 | $51.47 | $62.83 | |
| | Fifth Year | | $42.86 | $55.59 | $68.33 | |
| Siding & Decking | | SHM-80-SD | $34.58 | $46.03 | $57.48 | H H H H H H H D Y |
| **Sound & Communication** | | | | | | |
| Installer/Technician | | EC-58-SC | $29.33 | $41.30 | $53.26 | H H H H H H H D N |
| | **Apprentice Rates:** | | | | | |
| | Period 1 | | $17.16 | $23.04 | $28.93 | |
| | Period 2 | | $18.38 | $24.88 | $31.37 | |
| | Period 3 | | $19.59 | $26.69 | $33.79 | |
| | Period 4 | | $20.81 | $28.53 | $36.23 | |
| | Period 5 | | $22.02 | $30.33 | $38.65 | |
| | Period 6 | | $23.24 | $32.17 | $41.09 | |

Official Request #: 1241
Requestor: TROY SCHOOL DISTRICT
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

## Official Rate Schedule

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| Classification Name | Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|---|
| **Sprinkler Fitter** | | | | | | |
| Sprinkler Fitter | | SP 704 | $52.17 | $70.51 | $88.85 | H H D H D D D D Y |
| | **Apprentice Rates:** | | | | | |
| | 1st Period | | $21.82 | $29.16 | $36.50 | |
| | 2nd Period | | $32.00 | $40.25 | $48.51 | |
| | 3rd Period | | $33.83 | $43.00 | $52.17 | |
| | 4th Period | | $35.67 | $45.76 | $55.85 | |
| | 5th Period | | $37.50 | $48.51 | $59.51 | |
| | 6th Period | | $39.34 | $51.27 | $63.19 | |
| | 7th Period | | $41.17 | $54.01 | $66.85 | |
| | 8th Period | | $43.00 | $56.75 | $70.51 | |
| | 9th Period | | $44.84 | $59.51 | $74.19 | |
| | 10th Period | | $46.67 | $62.26 | $77.85 | |
| **Terrazzo** | | | | | | |
| Terrazzo Finisher | | TT32-TRF | $37.57 | $47.47 | $57.37 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | | |
| | Level 1 | | $19.15 | $24.74 | $30.33 | |
| | Level 2 | | $19.78 | $25.69 | $31.59 | |
| | Level 3 | | $12.49 | $18.74 | $24.98 | |
| | Level 4 | | $24.38 | $31.25 | $38.13 | |
| | Level 5 | | $25.67 | $32.75 | $39.83 | |
| | Level 6 | | $27.56 | $35.09 | $42.62 | |
| | Level 7 | | $28.50 | $36.12 | $43.74 | |
| | Level 8 | | $29.78 | $37.65 | $45.51 | |
| Terrazzo Worker | | TT32-TRW | $42.29 | $54.80 | $67.31 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | | |
| | Level 1 | | $23.46 | $30.21 | $36.96 | |
| | Level 2 | | $26.11 | $33.60 | $41.08 | |
| | Level 3 | | $28.80 | $36.55 | $44.31 | |
| | Level 4 | | $31.10 | $39.68 | $48.26 | |
| | Level 5 | | $33.16 | $42.17 | $51.17 | |
| | Level 6 | | $36.34 | $46.75 | $57.17 | |
| | Level 7 | | $37.40 | $48.21 | $59.03 | |
| | Level 8 | | $38.21 | $49.43 | $60.65 | |

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| Classification Name / Description | | Straight Hourly | Time and a Half | Double Time | Overtime Provision |
|---|---|---|---|---|---|
| **Tile** | | | | | |
| Tile Finisher | TT32-TF | $37.19 | $46.90 | $56.61 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | |
| | Level 1 | $18.06 | $23.11 | $28.15 | |
| | Level 2 | $19.08 | $24.63 | $30.19 | |
| | Level 3 | $23.09 | $29.32 | $35.55 | |
| | Level 4 | $24.35 | $31.21 | $38.07 | |
| | Level 5 | $25.64 | $32.71 | $39.77 | |
| | Level 6 | $27.03 | $34.46 | $41.90 | |
| | Level 7 | $28.47 | $35.95 | $43.43 | |
| | Level 8 | $29.75 | $37.48 | $45.20 | |
| Tile Layer | TT32-TL | $42.19 | $54.65 | $67.11 | H H D H D D D D N |
| | **Apprentice Rates:** | | | | |
| | Level 1 | $23.46 | $30.21 | $36.96 | |
| | Level 2 | $26.11 | $33.60 | $41.08 | |
| | Level 3 | $28.80 | $36.55 | $44.31 | |
| | Level 4 | $31.10 | $39.68 | $48.26 | |
| | Level 5 | $33.11 | $41.96 | $50.82 | |
| | Level 6 | $36.29 | $46.68 | $57.07 | |
| | Level 7 | $36.85 | $47.39 | $57.93 | |
| | Level 8 | $37.66 | $48.61 | $59.55 | |
| **Truck Driver** | | | | | |
| on all trucks of 8 cubic yard capacity or less | TM-RB1 | $32.62 | $35.55 | | H H H H H H H H Y |
| of all trucks of 8 cubic yard capacity or over | TM-RB1A | $32.72 | $35.70 | | H H H H H H H H Y |
| on euclid type equipment | TM-RB1B | $32.87 | $35.93 | | H H H H H H H H Y |
| **Underground Laborer Open Cut, Class I** | | | | | |
| Construction Laborer | LAUC-Z1-1 | $31.39 | $41.90 | $52.41 | H H H H H H H D Y |
| | **Apprentice Rates:** | | | | |
| | 0-1,000 work hours | $26.63 | $34.76 | $42.89 | |
| | 1,001-2,000 work hours | $27.59 | $36.20 | $44.81 | |
| | 2,001-3,000 work hours | $28.54 | $37.63 | $46.71 | |
| | 3,001-4,000 work hours | $30.44 | $40.47 | $50.51 | |

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|---|---|---|---|---|---|
| **Underground Laborer Open Cut, Class II** | | | | | |
| Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector. | LAUC-Z1-2 | $31.50 | $42.07 | $52.63 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.72 | $34.89 | $43.07 | |
| 1,001-2,000 work hours | | $27.67 | $36.32 | $44.97 | |
| 2,001-3,000 work hours | | $28.63 | $37.76 | $46.89 | |
| 3,001-4,000 work hours | | $30.54 | $40.63 | $50.71 | |
| **Underground Laborer Open Cut, Class III** | | | | | |
| Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger man, and directional boring man. | LAUC-Z1-3 | $31.55 | $42.14 | $52.73 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.75 | $34.94 | $43.13 | |
| 1,001-2,000 work hours | | $27.71 | $36.38 | $45.05 | |
| 2,001-3,000 work hours | | $28.67 | $37.82 | $46.97 | |
| 3,001-4,000 work hours | | $30.59 | $40.70 | $50.81 | |
| **Underground Laborer Open Cut, Class IV** | | | | | |
| Trench or excavating grade man. | LAUC-Z1-4 | $31.63 | $42.26 | $52.89 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.81 | $35.03 | $43.25 | |
| 1,001-2,000 work hours | | $27.78 | $36.49 | $45.19 | |
| 2,001-3,000 work hours | | $28.74 | $37.93 | $47.11 | |
| 3,001-4,000 work hours | | $30.67 | $40.82 | $50.97 | |
| **Underground Laborer Open Cut, Class V** | | | | | |
| Pipe Layer | LAUC-Z1-5 | $31.69 | $42.35 | $53.01 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $26.86 | $35.11 | $43.35 | |
| 1,001-2,000 work hours | | $27.83 | $36.56 | $45.29 | |
| 2,001-3,000 work hours | | $28.79 | $38.00 | $47.21 | |
| 3,001-4,000 work hours | | $30.72 | $40.89 | $51.07 | |

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|---|---|---|---|---|---|
| **Underground Laborer Open Cut, Class VI** | | | | | |
| Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work. | LAUC-Z1-6 | $29.14 | $38.53 | $47.91 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $24.95 | $32.24 | $39.53 | |
| 1,001-2,000 work hours | | $25.79 | $33.50 | $41.21 | |
| 2,001-3,000 work hours | | $26.62 | $34.75 | $42.87 | |
| 3,001-4,000 work hours | | $28.30 | $37.27 | $46.23 | |
| **Underground Laborer Open Cut, Class VII** | | | | | |
| Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc. | LAUC-Z1-7 | $25.76 | $33.46 | $41.15 | H H H H H H H D Y |
| **Apprentice Rates:** | | | | | |
| 0-1,000 work hours | | $22.41 | $28.43 | $34.45 | |
| 1,001-2,000 work hours | | $23.08 | $29.43 | $35.79 | |
| 2,001-3,000 work hours | | $23.75 | $30.44 | $37.13 | |
| 3,001-4,000 work hours | | $25.09 | $32.45 | $39.81 | |

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MICHIGAN DEPARTMENT OF LABOR & ECONOMIC GROWTH
WAGE & HOUR DIVISION

# OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE SCHEDULE

1. Overtime is represented as a nine character code. Each character represents a certain period of time after the first 8 hours Monday thru Friday.

| | Monday thru Friday | Saturday | Sunday & Holidays |
|---|---|---|---|
| First 8 Hours | | 4 | 8 |
| 9th Hour | 1 | 5 | |
| 10th Hour | 2 | 6 | |
| Over 10 hours | 3 | 7 | |

Overtime for Monday thru Friday after 8 hours:
the 1st character is for time worked in the 9th hour *(8.1 - 9 hours)*
the 2nd character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 3rd character is for time worked beyond the 10th hour *(10.1 and beyond)*

Overtime on Saturday:
the 4th character is for time worked in the first 8 hours on Saturday *(0 - 8 hours)*
the 5th character is for time worked in the 9th hour on Saturday *(8.1 - 9 hours)*
the 6th character is for time worked in the 10th hour *(9.1 - 10 hours)*
the 7th character is for time worked beyond the 10th hour *(10.01 and beyond)*

Overtime on Sundays & Holidays
The 8th character is for time worked on Sunday or on a holiday

The last character indicates if an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked.

2. Overtime Indicators Used in the Overtime Provision:

H - means TIME AND ONE-HALF due
X - means TIME AND ONE-HALF due after 40 HOURS worked
D - means DOUBLE PAY due
Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked
N - means NO an optional 4-day 10-hour per day workweek *can not* be worked without paying overtime after 8 hours worked

3. EXAMPLES:

HHHHHHHDN - This example shows that the 1½ rate must be used for time worked after 8 hours Monday thru Friday *(characters 1 - 3);* for all hours worked on Saturday, 1½ rate is due *(characters 4 - 7).* Work done on Sundays or holidays must be paid double time *(character 8).* The N *(character 9)* indicates that 4 ten-hour days is not an acceptable workweek at regular pay.

XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday *(characters 1-3);* for hours worked on Saturday, 1½ rate is due *(characters 4 – 7)*. Work done on Sundays or holidays must be paid double time *(character 8).* The Y *(character 9)* indicates that 4 ten-hour days is an acceptable alternative workweek.

(REV 05/07/04)

| TROY SCHOOL DISTRICT<br>Bid 9373 Bldg. Management System Modifications<br>Troy High School<br><br>Description | CO.: MCMI<br>TERMS: Net 30<br>FIRM: 30 Days | Total Cost |
|---|---|---|
| **Included in this Quotation:** | | **706,500.00** |
| -Installation of al 120 VAC power wiring for the terminal unit controls.<br>-Pipe insulation repair where existing is damaged due to work on the quotation.<br>-All work to be performed M-F 7:00 a.m. to 4:00 p.m., Non Holidays.<br>-Existing chilled water system bypass valve to remain pneumatic.<br>-Pneumatic demolition above finished ceilings limited to cut & cap at deck.<br>-Complete pneumatic demolition in mechanical rooms.<br><br>**No included in this proposal:**<br>-Painting & patching by owner. | Amount included the Quotation for Payment and Performance bond | 10,500.00 |

Guardian Environmental - No Response
Temperature Services, Inc. - No Response
Electrol Corp. - No Response
Johnson Controls Inc. - No Response