REQUEST FOR QUOTATION		REQUISITION
No. 9371	TROY SCHOOL DISTRICT	
DUE DATE NO LATER THAN 12-6-06 3 p.m.	1140 RANKIN, TROY, MICHIGAN 48083 248-823-4052 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 an ACCESS CONTROL AND INTRUSION SECURITY SYSTEM FOR THE NEW BAKER MIDDLE SCHOOL per the attached specifications. Copies of the bid are available at: www.troy.k12.mi.us/purchasing/items_out_for_bid.htm Bid recaps will be available at: troy.k12.mi.us/purchasing/index.htm FACSIMILE BID IS NOT ACCEPTABLE 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. 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. 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

New Baker Middle School
Security Management System
Specification

Revision 1.1 – Dated 9.18.06

1 GENERAL

1.1 SCOPE OF WORK

The following scope of work is to be included in this contract and does not necessarily include every item of work. The Contractor shall supply and install items that meet the specified requirements of the final order. The Security Management System (SMS) Workstations shall be furnished complete, installed, tested, and operational. The SMS is designed to secure the designated CUSTOMER facilities. The work to be provided, in addition to designing, furnishing and installing the SMS, shall include the following:

A. Provide Software that meets specified contract requirements.
B. Verification that proposed equipment and devices furnished is adequate for the intended purpose.
C. Perform a layout check to ensure that adequate access is available for construction, installation and maintenance of equipment and devices furnished, however, the Contractor is not responsible for furniture. The Contractor shall consult the customer in the design of the workplace.
D. Perform acceptance tests to show system is properly installed and that it meets the specifications and applicable codes.
E. The CUSTOMER System Administrator shall be responsible to configure and maintain the system. System utilities shall be provided for the System Administrator to use. Software for backups and log file maintenance shall also be provided.

1.2 SCOPE OF SYSTEM

1.2.1 Basic System Characteristics

This specification is based on the capabilities of Andover Controls Continuum Security Management System. Any alternate system shall comply with all of the capabilities of the specified system and be pre-approved by the TSD prior to bidding.

1.2.1.1 The SMS shall provide an integral solution through the use of control hardware and PC workstation-based software for Access Control, Security/Intrusion Detection, CCTV Integration, Photo Imaging, Visitor Management, Elevator Control, Time & Attendance, Fire & Life Safety, Environmental Control, Energy Management, and Lighting Control.

1.2.1.2 This SMS shall provide a true multi-tasking, multi-workstation client-server arrangement based on PC-based client platforms running Microsoft's Windows NT Workstation version 4.0 or greater operating system and PC-based server(s) running Microsoft Windows NT Server version 4.0 or greater and Microsoft's SQL relational database management system version 6.5 or greater.

1.2.1.3 The SMS client-server arrangement shall communicate with native TCP/IP Primary Network Controllers over an existing TSD owned Ethernet TCP/IP enterprise network.

1.2.1.4 The SMS shall be capable of controlling a minimum of 100,000 doors, 4,000,000 cardholders; monitoring up to 100,000 supervised input points, and activating up to 100,000 output control points.

1.2.2 Base Bid

Contractor shall provide the SMS as shown on the drawing and specified herein including but not limited to the following:

A. Utilize the existing Integrated HVAC/SMS Alarm Monitoring and Display Workstation.
B. New Photo Imaging Workstation and Peripherals.
C. Utilize the existing Web Based thin client interface (2) concurrent users.
D. Workstation Peripherals.
E. Access Control and Alarm Monitoring Controllers.
F. Primary Network Controllers.
G. Local Field Controllers.
H. LON I/O Modules.
I. Field Hardware Devices (not specified by others).
J. Software Modules Required for Specification Operation.

1.3 REFERENCED AND SYSTEM CERTIFICATIONS

Design and operation of the SMS shall conform to the following referenced codes, regulations, and standards as applicable:

A. National Electrical Code (NEC)
B. UL 294 Access Control Systems
C. UL 1076 Line Supervision
D. FCC Rules and Regulations
E. Part 15, Radio Frequency Devices
F. National Electrical Manufacturers Association (NEMA)
G. Applicable Federal, State and Local laws, regulations, codes
H. Americans with Disabilities Act (ADA)

1.4 APPROVED MANUFACTURER

A. The following are the approved IBAS Manufacturers:
    - TAC Andover Controls Continuum System

Contractors Qualifications: Factory authorized representatives of TAC that are A.C.E Certified to provide TAC's Andover Controls Integrated Building Controls Solution Inclusive of Temperature Controls, Lighting Control, Access Control, Intrusion Detection, Digital Video Monitoring and Visitor Management utilizing the owners existing TAC Continuum 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 a qualified live system prior to award. The successful bidder shall have an office within 50 miles of the project site and maintain 24 Hour, 365 Day/Year Support Service. The local service 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 SMS provided.

1.5 SUBMITTALS

Contractor shall submit all items in accordance with the requirements of Division 1, Submittals, and shall include, but not be limited to the following:

A. Model numbers of all components furnished on the job
B. Manufacturer's Installation Instructions
C. Manufacturer's catalog data sheets for all components
D. Input power requirements for all components
E. Complete engineered drawings indicating:
    1) Layout, wiring diagrams and dimensions.
    2) Point-to-point wiring diagrams for all devices
    3) Termination details for all devices
    4) Single-line system architecture drawings representing the entire system.
F. The Contractor shall submit a paragraph item-by-item statement of compliance. The statement of compliance shall consist of a list of all paragraphs starting at Section 1.
    1) Where the proposed system complies fully, such shall be indicated by placing the word "comply" opposite the paragraph number.
    2) Where the proposed system does not comply, but accomplishes the stated function in a manner different from that described, such shall be indicated by placing the words "comply with intent" opposite the paragraph number, followed by a full description of the deviation. Where a full description of the deviation is not provided, it shall be assumed that the proposed system does not comply with the paragraph in question and an "exception" is taken.
    3) Where the system does not offer the functionality stated, such shall be indicated by placing the word "exception" opposite the paragraph number.
G. Any proposal submitted which does not include a paragraph item-by-item statement of compliance as described herein shall be deemed non-responsive.
H. Operation Data: Include operating instructions.
I. Maintenance Data: Include maintenance and repair procedures.
J. Training Syllabus: Include course outlines for each of the end user training programs. The course outlines shall include the course duration, location, prerequisites, and a brief description of the subject matter.

1.6 GUARANTEE

1.6.1 Period

The Contractor shall guarantee all labor, workmanship and materials for a period of 1 year from the date of final acceptance. Should a failure occur within the first year to the access control system, the Contractor shall provide all labor and materials necessary to restore the system to a complete operating condition, at no cost to the Owner.

1.7 SYSTEM DESCRIPTION & CAPABILITIES

1.7.1 Primary Function

The SMS's primary function shall be to regulate access through specific doors and gates to secured areas of the CUSTOMER facility and the option to provide photo IDs for that

use and detect and report intrusion into the facility during unoccupied times. The SMS shall utilize a single database for both its access control and photo imaging functionality. This integration shall be provided under one operating system environment. The SMS's workstation environment is Microsoft XP Pro SP2 Workstation operating system.

1.7.1.1 The software architecture shall be object-oriented in design, a true 32-bit application suite utilizing Microsoft's OLE, COM and DCOM technologies. These technologies make it easy to fully utilize the power of the operating system to share, among applications (and therefore to the users of those applications), the wealth of data available from the SMS.

1.7.1.2 The SMS shall allow the configuration of an integrated workstation (which provides both photo imaging, and alarm and display monitoring), a photo imaging workstation, and an alarm and display workstation. These workstations, file server(s) and Primary Network Controllers shall be connected via the CUSTOMERs high-speed IEEE 802.3 Ethernet backbone running TCP/IP protocol. Up to 4 million nodes, i.e. workstations, servers, and Primary Network Controllers can be connected to this backbone.

1.7.1.3 The SMS shall be expandable to include 500 Photo Imaging and/or 500 Alarm and Display or Integrated Workstations. The Primary Network Controllers shall support multiple communication ports including a RS-485 network from which up to 254 standalone field controllers such as an access controller and alarm monitoring controllers connect, in addition to a LON port for connecting up to 32 LON modules.

1.7.1.4 The Alarm Monitoring and Display Workstation shall be able to monitor field hardware devices, such as card readers and field controllers. Administrative tasks such as assigning areas, schedules, report generation, displaying color graphic maps, etc. shall be provided from any Workstation on the network.

1.7.1.5 The Photo Imaging Workstation shall serve as both the credential creation and data input Workstation for the cardholder management of the system. The integrated workstation shall allow all the functions of both a photo imaging and an alarm and display monitoring Workstation. All the data shall reside on a single database and shall be instantly accessible at every Workstation connected to the network. This shall provide automatic change propagation to all Workstations in the system.

1.7.1.6 The SMS shall support remote Workstation(s) connectivity to the file server via dial-up PPP Remote Access Server (RAS) connection(s). Multiple RAS connections shall be established using modem arrangements resident on the Ethernet enterprise network.

1.7.1.7 The SMS shall utilize a commercially available, Open DataBase Connectivity-compliant (ODBC), MSDE open architecture relational database with flexible design allowing the integration into other data structures. This database shall handle the storage and retrieval of all

cardholder records information, images, system maps, reports, and screen designs. The database shall operate in a truly muti-tasking environment without degradation of system operation and be of a design that will handle the transaction loading placed on the system. The relational database shall support on-line backup, stored procedures with control logic, and server-based referential integrity. This ODBC database engine allows for an owner to utilize “their” choice of database and due to its “open” architecture, allows an owner to write custom applications and/or reports which communicate directly with the database avoiding data transfer routines to update other applications. The system database shall contain all point configurations and programs in each of the controllers that have been assigned to the network.

1.7.2 System Design

The SMS shall be designed to perform a wide variety of features and functions. These system functions should be categorized into four (4) primary "system departments" which shall include:

1.7.2.1 Access Control

The SMS's primary purpose shall be to provide access control. The system shall be able to make access granted or denied decisions, define access privileges, and to set schedules and holiday groups. All inputs and outputs shall be capable of being transmitted globally across all system networks. And through the use of application programming these inputs and outputs shall be capable of being linked at all field panels 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, and multiple-man rule.

1.7.2.2 Alarm Management

The SMS shall be used for alarm monitoring. A color graphic application shall allow a user to create or import customized color graphic maps of their facility and to attach alarm icons to those maps. Alarms are to be prioritized. A status window shall provide information about the specific alarm including date and time and location of the alarm. The SMS shall allow unique emergency instructions to be specified for each type of alarm. Output control operations shall be available to lock, unlock or pulse control points, or groups of points as a standard feature. A cardholder call-up feature allows the quick search and display of images in the database. A user journal shall be available to log important daily events. A trace function shall be available for users to locate and track activity on specific cardholders or card readers. An image comparison feature shall be provided for use in conjunction with a CCTV technology interface. Provide a pager program that will notify the owner upon intrusion detection. The pager program shall use a numeric system to indicate the site and type of alarm. The pager program will sequence through five phone numbers until the alarm is acknowledged.

1.7.2.3 Cardholder Management and Enrollment

The SMS shall include an employee management system integrated with the access control system. This employee management functionality shall allow the enrollment of cardholders into the database, capturing of images and import/export of employee data.

This functionality shall also allow the user to assign or modify access privileges of a cardholder.

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

1.7.2.4 System Administration

System Administrative tasks such as defining workstation and user permissions setup, area access, schedules, generation of reports, displaying maps, etc. shall be available at any workstation on the network. System tape back-up and remote diagnostics shall occur at the designated file server that provides the required hardware.

2 OPERATIONAL REQUIREMENTS

2.1 GENERAL

The design of the SMS shall include devices and equipment used to monitor and control access to restricted areas, detect and deny unauthorized entries within specific buildings or areas annunciate alarms and generate reports. Once incorporated with the day-to-day operations of the designated facility, this system shall detect and deter unauthorized entry into restricted areas. The SMS is to be designed and configured to provide operational flexibility and reliable performance.

2.1.1 Functional Responsibilities

CUSTOMER shall have the responsibility for managing and operating the system, as well as maintaining the graphical representations of the designated facility input into the system's color graphics application. It shall be the responsibility of the CUSTOMER to enroll all personnel and capture the associated images.

2.1.2 Operational Concept

The SMS shall consist of equipment and devices placed at predetermined locations to ensure that only cardholders who are authorized to enter secured areas through certain doors or gates can do so. This shall be accomplished by means of a computer and electronic devices used in conjunction with door locks, gate systems and card readers.

2.1.2.1 When an employee is newly hired or is changing job responsibilities, a personnel form shall be available within the SMS application. This employee data screen shall contain at a minimum 114 data entry fields of information. The employee data screen shall allow for multiple pages of user information that can be input upon enrollment. Above and beyond the 50 fixed fields there shall also be 64 user-definable fields. These fields shall vary in character length as dictated by the system. Data fields shall be assigned as alphanumeric or numeric.

2.1.2.2 As a fundamental operation, the SMS shall provide an integrated link between the Photo Imaging and Access Control system functionality. This will allow specific information concerning personnel data to be automatically shared by utilizing a single database. Personnel data and images shall be enrolled and captured via the photo imaging application and access privileges shall be assigned via the access control application.

2.1.2.3 After the applicant's picture is captured by the system, the photo image is to be printed on the badge and appear in a pre-defined format specified prior to the system installation.

2.2 SMS FEATURES

All SMS applications shall be easy, quick and efficient to use. The system shall combine keyboard and mouse operations with graphical presentations of screen information. Each application is to provide consistent user interfaces across all operations of the system. Practical methods of generating help options, standard terminology, and menus are also required. All routine information displayed and requiring input shall be in English

language prose. No operation shall require the interpretation of machine code or the use of mnemonics.

2.2.1 Access Control

2.2.1.1 Access Privileges - All cardholders shall have facility access based on privileges assigned by controlled area, time and date. For example, some badges shall only allow access to the facility on weekdays between 8:00 a.m. and 5:00 p.m., while others allow access on weekends between 1 p.m. to 5 p.m. and so on. These time zones for each day are to be pre-defined by CUSTOMER and shall be able to be modified quickly by authorized employees without vendor intervention. There shall be an unlimited number of user-definable access privileges.

2.2.1.2 Holidays - The Holidays application shall allow the System Administrator to create holiday schedules that designate individual days as holidays, or special days to cover vacations, maintenance shutdowns, or other events, indefinitely into the future. Holidays or special days can signal that the system shall operate on a schedule different from the normal schedule. The system shall not limit the number of holiday or special schedules that can be created.

2.2.1.3 Time / Date - The time and date of the system shall be set by the operating system of the client workstation. Dates for Daylight Savings Time shall automatically take effect. Holiday schedules shall be capable of overriding normal schedules in effect.

2.2.1.4 Global Data Exchange and Operating Strategies - The SMS shall provide global data exchange and operating strategies. The system shall allow any input point configured in the system (i.e., door tamper, duress, etc.) to permit activation of any control output point such as a relay(s) that opens a door and/or sounds an alarm. The logic shall be developed using an application programming language that shall be capable of incorporating other parameters such as date and time; it shall not be limited by a fixed numbers of rules, or the simple linking of inputs to outputs. The global operating strategies feature shall provide the ability to drive any system output or outputs from single or multiple inputs, access events, alarms, etc. Each output point shall be controllable by the system and be configurable individually for the following responses:

1) Output relays (and groups) shall be capable of responding to:
   a) Input alarms from any field panel or card reader point in the system, or any combination thereof.
   b) Access events.
   c) Date and time parameters.
   d) Commands from a user.
2) Output relays (and groups) shall be capable of:
   a) Pulsing for a predetermined duration; duration shall be programmable for each relay individually.

b) "Following" any input point from any field controller, I/O module, or card reader input in the system (on with alarm, off when clear, or as required).
c) Locking On with alarm, requiring user intervention to reset the output relay.
d) The system shall permit output relays to be ordered on, off, pulsed or reset back to a default setting.

2.2.1.5 Shunt Time

A Shunt Time feature shall be provided to allow users to program, at the door level, a length of time to hold a door open without creating an alarm condition at the monitoring workstation. The shunt time feature shall be usable by any cardholder with an active badge and appropriate access rights. Valid open times shall range from 0-9999 seconds. If the door fails to close prior to the expiration of the shunt period, a "door held open" alarm shall occur at the system's monitoring workstation. If the door is closed prior to the expiration of the shunt period, the door position switch shall become active immediately, allowing a “door forced open” alarm to be annunciated in the event of an intrusion.

2.2.1.6 Area Control

The SMS shall provide five (5) area control features: Hard Anti-passback, Soft Anti-passback, Timed Anti-passback, Multiple-Man Rule, and Occupancy Limit. Area control shall be a security method of preventing a person from passing their badge to another person for dual entry into a location utilizing one card.

1) Hard Anti-passback
   The Hard Anti-passback feature shall require that a badge always be used to enter and exit an area. Areas shall be logically defined under the SMS, and area control shall not be required at all areas of CUSTOMER facility to be utilized. The system shall allow supervisors whose cards are configured “VIP” to be exempt from this feature as configured by the System Administrator.
2) Soft Anti-passback
   The Soft Anti-passback feature shall require that a badge be used to enter and exit an area, but access shall not be denied if the badge was not presented in the correct order. The system shall automatically generate an anti-passback violation event and can be trigger an alarm to be generated. The controlled areas shall have both entry and exit readers at all portals. When a cardholder uses a card reader for entrance, and has not swiped out, an anti-passback alarm shall notify the user. Areas shall be logically defined under the SMS, and area control shall not be required at all areas of CUSTOMER facility to be utilized. The system shall allow supervisors whose cards are configured “VIP” to be exempt from this feature as configured by the System Administrator.
3) Timed Anti-passback
   This anti-passback feature shall allow the System Administrator to decide how long after a cardholder has swiped will they have to wait before the same card will be accepted again at the same reader, or globally at any other reader defined in the area. This helps prevent multiple swipes by an individual to allow access to others through turnstile doors.

4) Multiple-Man Rule
   Multiple-Man Rule shall be provided through application programming to restrict access to certain areas unless there is more than one cardholder present. Individual exit shall be permitted until the required number of people to originally gain access is reached, at which point the Multiple-Man Rule applies for exiting.
5) Occupancy Limit
   Occupancy Limit shall restrict the number of cardholders that will be present in an area at any given time. The Occupancy Limit shall be able to be defined by the System Administrator for each controlled area. Each area for which Occupancy Limit is enabled shall be definable at all controlled areas equipped with entry and exit card readers.

2.2.1.7 FUTURE - Visitor Card Management System (VCMS)

VCMS is addition to the Personnel management capabilities inherent within The Tour-Andover Controls (TAC) security software. The personnel records are created and maintained at the access control workstation by qualified (training and authority) badging attendants. VCMS allows non-badging operators to add Visitor profiles, delegate and return Visitor cards to the local pool, and manage various VCMS-related reports. VCMS does not allow an operator to change an existing personnel profile. If there are problems with the data (missing or inaccurate) of a personnel object, those problems must be reconciled at the badging station.

There are two VCMS scenarios:
A person having a TSD approved personnel profile forgets their card and requires a temporary replacement.
A visitor without an approved profile requires a Visitor pass.

In case 1, the VCMS attendant will:
Scan the visitor's driver's license, or enter the appropriate information on the form to search the database.
Upon verifying the person's profile, the attendant can either:
-Call the visitor's supervisor and confirm the visitor's right to be in the building unescorted, or, depending on policy
-Skip the supervisor confirmation.
With confirmation, the attendant will then find a card at the desk. He will designate that card in the VCMS form, and Commit that card to that visitor.

In case 2, the VCMS operator will:
Scan the visitor's driver's license.
Perform a search in the database of personnel to confirm that the visitor has not been 'locked out' of the premises.
Enter the visitor's company and phone number (should the proximity card not be returned).
Create a Temporary (Visitor) personnel object in the database.
Find a card at the desk (RED), select that card from the form's list, and Commit that card to the visitor.

RED cards are given to Visitors not having a TSD approved personnel profile.
RED cards require a ‘supervisor’ to escort the visitor.

BLUE cards are given to Visitors who have a TSD approved personnel profile such as a known service vender or personnel who have misplaced or forgotten their card.
BLUE cards do not require a supervisor to escort the visitor.

Scanning a Drivers License

The ScanShell800 shall be utilized to enter information directly from a visitor’s drivers license into the VCMS.

Return Card to Pool

To return a Visitor card to the pool of available cards, the VCMS operator will click Card Mgmt, Return Card to Pool from the Main form’s menu.

A list of delegated (overdue and not) cards will be shown, from which he will select one by either single-clicking and pressing enter, or double-clicking.

2.2.1.8 Elevator Control

The SMS shall provide elevator control software that will permit the restriction of cardholder access to floors while also allowing general access to other floors. The elevator control software shall allow the use of any card reader and all reader modes used on any other reader in the system. The reader mode shall be schedule controlled to allow visitor access during business hours, and create higher security levels after working hours. An elevator card reader shall be located in the cab. The card reader shall integrate to the elevator control panel. The SMS shall also monitor all floor buttons. After the passenger swipes a card, he/she shall be required to press the desired floor button. The SMS shall then validate this cardholder as having privileges to travel to the floor, or not. Upon a successful validation, the SMS shall enable the floor button and then the elevator control panel shall illuminate the floor button and energize the relay to enable the elevator cab to travel to that floor. If the cardholder is not valid or does not have access to the floor selected, the system shall not illuminate the floor button nor energize any relay. The system shall be able to generate reports that date/time stamp these access transactions. Each personnel record shall provide an easy to use form to specify to which floors a person has access.

2.2.1.9 Dial-up Communications

The SMS shall offer dial-up communication from the SMS user workstations to multiple remotely located Primary Network Controllers (PNC) sites utilizing industry standard 28,800 baud Hayes Compatible Modems as a communications method. System shall allow each serial port at all workstations to be equipped with modems for remote communications.
The SMS host shall initiate communications to the dial-up PNC's on the following conditions:

1) Upon user request.
2) At configured intervals.

3) When access control configuration changes are made.
4) When changes in cardholders are made affecting the remote field panels.

The dial-up PNC's shall initiate host communications on any of the following conditions:

1) At configured intervals.
2) When specific events occur on the field hardware.
3) When the event buffer reaches a configured percentage of capacity.
4) When specific event/alarm types occur (e.g.: access denied).

Only one (1) standard dial-up telephone line per remote site shall be required, regardless of the number of PNC's and Local Field Controllers and I/O modules that are located there. Systems that require multiple dial-up telephones lines for multi-panel remote sites shall not be acceptable.

2.2.1.10 Manual Control

A user shall have the ability to easily dictate manual control of all output points connected to the system via color graphic maps. Control points are defined as any door strike or any other relay output point of a Local Field Controller and I/O module. The System Administrator shall have the option to group these outputs to simplify common output command procedures.

All system outputs shall display upon command from the user in a list window or graphic map. The list and commands shall be operational without interfering with alarm monitoring operations. If an output is ordered to a setting, and is also on time zone control, the last command shall always override.

All manual control commands shall record into the activity log for viewing by any user given proper privileges to do so.

Manual control for doors, or any relay output, shall allow the user to disable the door/output (to not accept any cards), unlock the door/output (leaving the door strike unlocked), pulse the door/output open or reset the door/output to a pre-defined default setting.

2.2.1.11 Arm-Disarm

The user shall have the ability to determine the current status (armed or disarmed) as well as the current state (alarm/normal/fault) of an input point from an input listview at any time.

The user shall have a "Status" item in the list view. Both the current status and state shall be reflected by the color of the respective columns in the list view.

Arm-Disarm shall be accomplished by a user through a simple click of the mouse on the individual point. Once a user arms an input point, events from the respective area permit the display of alarms at an alarm monitoring workstation from that point forward.

1) All input points shall be grouped for ease of operation into arm-disarm groups.
2) Arm-Disarm listviews shall be viewable at any time.

2.2.2 Alarm Management

2.2.2.1 General

The software shall be capable of accepting alarms directly from controllers, or generating alarms based on polling of data in controllers and comparing to limits or conditional equations configured through the software. Any alarm (regardless of its origination) shall be integrated into the overall alarm management system and shall appear in all standard

alarm reports, be available for user acknowledgment, and have the option for displaying graphics, or reports. Alarm management features shall include:

A. A minimum of 255-alarm notification levels. Each notification level shall establish a unique set of parameters for controlling alarm display, acknowledgment, keyboard annunciation, alarm printout and record keeping.
B. Automatic logging in the database of the alarm message, point name, point value, connected controller, timestamp, username, time of acknowledgement, and time of alarm silence (soft acknowledgement).
C. Automatic printing of the alarm information or alarm report to an alarm printer or report printer.
D. Sounding of an audible beep or playing an audio (.wav) or displaying a video (.avi) file on alarm initiation or return to normal.
E. Sending an email alphanumeric page to anyone listed in a workstation's email account address list on either the initial occurrence of an alarm and/or if the alarm is repeated because a user has not acknowledged the alarm within a user-configurable timeframe. The ability to utilize email and alphanumeric paging of alarms shall be a standard feature of the software integrated with the operating system's mail application interface (MAPI). No special software interfaces shall be required.
F. Sending a text message to an alphanumeric pager compliant with the TAPI protocol.
G. Individual alarms shall be able to be re-routed to a workstation or workstations at user-specified times and dates. For example, an invalid card read alarm can be configured to be routed to a system administrator workstation during normal working hours (7am-6pm, Mon-Fri) and to a Central Alarming workstation at all other times.
H. An active alarm viewer shall be included which can be customized for each user or user type to hide or display any alarm attributes. As a minimum, the alarm viewer shall display:
    1) Date / Time of Alarm
    2) Name of Alarm
    3) Priority of Alarm
    4) Type of Alarm
    5) Alarm Message
    6) User Text Input
    7) User Action Drop-down list
    8) Acknowledged by
    9) Date / Time of Acknowledge
    10) Silenced By
    11) Date / Time of Silence
I. The font type and color, and background color for each alarm notification level as seen in the active alarm viewer shall be customizable to allow easy identification of certain alarm types or alarm states.
J. The active alarm viewer shall be configured for critical alarms such that a user is required to type in text in an alarm entry field and/or pick from the user

action drop-down list. This ensures accountability (audit trail) for the response to critical alarms.

K. The user shall have the ability to Soft Acknowledge (Silence) or Acknowledge the alarm, each of these actions shall be logged and date/time stamped.
L. Each alarm shall be configured to be acknowledged under the following:
   1) Acknowledge all of the same alarm type.
   2) Acknowledge all of the same alarm types until a specified time.
   3) Acknowledge only highlighted alarm.
M. The user shall have the ability to configure how alarms are removed from the active alarm view based on the following:
   1) Acknowledged
   2) Return to Normal
   3) Acknowledged or Return to Normal
   4) Acknowledged and Return to Normal
   5) Acknowledged after Return to Normal
N. The user shall have the ability to highlight a specific alarm and select a button to display an associated graphic map, or select a button to display an associated report.
O. Each alarm event shall be configured as either Single Entry or Multi-Entry. Alarm events that occur for the same point going into and out of the active alarm state may be designated as Single Entry and displayed in the active alarm view once only. Each time the alarm occurs, the time/date stamp of the single entry shall update in the active alarm view. In addition, each individual alarm event shall be logged into history with all respective times of occurrence. Alarm events designated as Multi-Entry shall be shown in the active alarm view and in the alarm history log for each occurrence.
P. Other alarms shall be displayed by the system while any alarm is being addressed. If another alarm occurs, the alarm pending counter shall increase by one, the new alarm shall enter into the alarm list box prioritized in an order as defined by the System Administrator.
Q. The SMS shall allow journals to be retrieved, viewed and edited on screen. Journals shall be saved to tape during tape back-ups for a permanent record as required by CUSTOMER regulations.

2.2.2.2 Current Status Indication

The active alarm view shall provide a status indicator that displays the current status of alarms and field panels. Selecting the graphic icon shall provide the user with a detailed list of the groups of devices offering a dynamic list view of the current status of the respective points.

2.2.2.3 Cardholder Record Call-up

The user shall be able to initiate the call-up of a cardholder record. This feature shall be provided at all Alarm and Display Monitoring Workstations to assist the user in determining access rights for an employee who may have forgotten his or her badge. Utilizing a database search via the input of the cardholder's name, or other key search fields, the SMS shall access the employee's personnel file, containing pertinent

information and the employee's image for identification by the user. This operation shall not restrict the operation of monitoring alarms.

2.2.2.4 Cardholder or Card Reader Trace

The user shall be able to initiate several cardholder traces and/or card readers while monitoring alarms. This information shall be continuously accumulated in the trace window until the trace is stopped. The trace operations shall not interfere with the operation of the alarm monitoring, and be continuous while alarms are monitored. The results of each trace shall be printable on the report printer or displayed on the screen. The traces shall operate independently, such that one trace may stop and start without interfering with another. A list of the last 25 access event transactions shall be available in each personnel record.

2.2.2.5 Automatic User Logoff

The system shall automatically log the user out of the application after a specified period of inactivity including keyboard input and mouse movement. The user shall have to log back into the system to handle an alarm. This feature shall be configurable on a workstation-by-workstation basis by the system administrator.

2.2.2.6 Scheduling

A. Time of day schedules shall be in a calendar style and shall be programmable up to ten years in advance. Each standard day of the week and user-defined day types shall be able to be associated with a color so that when the schedule is viewed it is very easy, at-a-glance, to determine the schedule for a particular day even from the yearly view. To change the schedule for a particular day, a user shall simply click on the day and then click on the day type.
B. Each schedule shall appear on the screen viewable as an entire year, month, week and day. A simple mouse click shall allow switching between views. It shall also be possible to scroll from one month to the next and view or alter any of the schedule times.
C. Schedules shall be assigned to specific controllers and stored in their local RAM memory. Any changes made at a workstation shall be automatically updated to the corresponding schedule in the controller.
D. Schedules shall be downloaded to the respective controller on a weekly basis.

2.2.3 Cardholder Management and Enrollment

The SMS shall incorporate into a single, integrated system the latest in imaging technology and identification management. The SMS shall generate and store up to 4 million personnel records, and monitor badge/credential use throughout the facility. These credentials shall be fabricated at any of the SMS Photo Imaging Workstations configured for CUSTOMER, based on data and images that are input and captured at the time of enrollment. Credential images are to be digitized using industry standard JPEG image compression, and printed using a dye-sublimation/resin thermal transfer printing process that is high quality and environmentally safe.

2.2.3.1 Create and Maintain Personnel Database

The user shall be able to create personnel records either through the use of templates (as described in System Administration section), or direct input into the personnel record.

Each personnel record shall be tabular in design for easy navigation through the fields. The user shall have the ability from the personnel record to easily:

A. Enable or disable the cards
B. Define expiration date
C. Define the acceptable card type
D. Define the card number, site code and PIN
E. Mark the card as Lost
F. Issue temporary or restore permanent card
G. Display the employee photo image and/or signature
H. Have the ability create or edit the image
I. Create, edit, or delete the cardholder's access privileges and additional personnel attributes

The selection of card type shall be chosen from a drop-down list that shall include ABA formats, Wiegand formats, and custom Wiegand format to allow use of a CUSTOMER's existing cards that may be of a format not standard within the SMS.
The expiration date shall be determined by date and time of day carried out to the nearest second.
The user shall be able to mark the card as lost by selecting that control button. This shall disable the card and create a stored record with the associated card number and cardholder. A new record shall automatically be created allowing the user to only have to add the new card number. In the event an attempted use of the card occurs, an invalid card event shall be logged and an associated alarm shall be generated to an operator workstation.
The user shall be able to issue a temporary card by selecting that control button. This action shall temporarily store the existing card number to a buffer and allow the user to then simply enter into the record the temporary card number. Upon return of the temporary card, the user shall select the reissue permanent card control button, which shall automatically restore the original card number.

2.2.3.2 Assigning Access Privileges

After a badge is created it shall be possible to assign access privileges to the personnel record. For convenience, the CUSTOMER System Administrator shall be able to define default templates for given personnel types. If a user has proper authorization, access privileges can be overwritten. When an individual's access privileges are modified that change shall be propagated to all required controllers immediately upon completion of the change. Record changes of access privileges shall affect only the modified record, and shall not require a download of the entire cardholder database.
Using personnel record configuration templates, the SMS System Administrator shall be capable of attaching previously defined privileges attached to the templates to new personnel requiring similar privileges. It shall be possible for the System Administrator to individually edit the newly created personnel record to modify the privileges in the event the person does not exactly comply with the template.

2.2.3.3 Badge Creation

A. Image Capture

Each SMS Photo Imaging Workstation shall include all equipment required to capture a high quality portrait image, with flash lighting and a high quality RGB

digital video camera. The Photo Imaging Workstation shall allow the camera user to view a live video image of the subject on the screen. The user shall view the subject in an upright position as they are captured.
While capturing subjects, the user shall have the option of capturing a new image of any subject without affecting the subject's record. The Photo Imaging Workstation shall provide a digitizer color control window in order to adjust the contrast and brightness of images. For convenience, default settings are to be provided.
The system shall provide the ability to move via mouse a fixed-size "capture window" over any portion of the live image displayed on the monitor and store only the image information within the outline of the window. The SMS shall include the ability, upon command, to preview, on-line and in full color, the badge as it will appear when printed. This preview mode shall require less than 10 seconds to create a complete example of the badge on-line.
SMS image capture, storage, and hardware compression techniques shall be in compliance with the ANSI X3L2.8 standard or JPEG.

B. Pre-defined Badge Formats

The badge format, including background color, layout, location of photo image, applicable graphics or company logos, text, etc., shall be completely and automatically determined by the system based on employee record information. Where choices are available to the user, choices are to be made via pre-defined list boxes to avoid user errors in spelling and badge assignment errors.

C. Multiple Badge Formats/Badge Layout Services

The successful vendor shall provide services for creating badge layouts based on this specification. A single badge layout shall be provided with the system. Additional badge layouts and logos shall be available through the vendor if required. The screen design and database configuration shall be done in conjunction with the badge layout design.

D. Color Credential/Badge Printing

Credential printers shall be high-density dye-sublimation type printers offering 300 dots per inch resolution with a clear overlay option for high durability. The credential media used shall be compatible with the Credential Printer. The Credential Printer shall be able to print one-sided or two-sided credentials in credit card sizes and in portrait or landscape orientations.
The user shall be able to print the badge as soon as it is created or to send the badge to a print queue for later batch printing. Within the print queue the user may print all badges, print a selected badge, and delete a selected badge or preview without printing.
The Credential Printer shall incorporate a card cleaning system that cleans the front and back of the card simultaneously before printing begins.

E. Batch Printing

The CUSTOMER Photo Imaging user shall be able to print a credential immediately or send it to a print queue. The SMS Photo Imaging Workstation shall have the ability to print a large volume of badges with a single command using a print queue screen. At the print queue, the user shall have the option of

printing all badges, printing selected badges, deleting a badge, or previewing badges without printing.

F. Security Color Levels

The SMS shall be able to print badges with varying, user-defined security color levels created from the entire RGB spectrum. For example, a blue background badge may designate UNESCORTED VISITOR, a orange background badge may designate EMPLOYEE, a red background badge may designate and a red background badge may designate ESCORT REQUIRED VISITOR.

2.2.3.4 Search Records

The SMS shall allow the user to search for records and images using search criteria on any field(s) in the database. The user shall be able to enter the search criteria for one or a combination of fields. In addition, partial searches shall be performed by typing a wild card symbol (*) at the end of a Last Name, or partial string. For example, a partial last name search on Smi* might return "Smiley," "Smith," or "Smitts." Using the wildcard symbol alone in a key field (i.e. typing an asterisk in the last name field and selecting the search function) shall return every record in the database which contains information in its last name field.

2.2.4 System Administration

2.2.4.1 General

The workstation software shall use a familiar Windows Explorer-style interface for a user or programmer to view and/or edit any object (controller, point, alarm, report, schedule, etc.) in the entire system. In addition, this interface shall present a “network map” of all controllers and their associated points, programs, graphics, alarms, and reports in an easy to understand structure.

The configuration interface shall also include support for template objects. These template objects shall be used as building blocks for the creation of the SMS database. The types of template objects supported shall include all data point types (input, output, string variables, etc.), Personnel records, doors, alarm algorithms, alarm notification objects, reports, graphics displays, schedules, and programs. Groups of template object types shall be able to be set up as template subsystems and systems. The template system shall prompt for data entry if necessary. The template system shall maintain a link to all “child” objects created by each template. If a user wishes to make a change to a template object, the software shall ask the user if he/she wants to update all of child objects with the change. This template system shall facilitate configuration and programming consistency and afford the user a fast and simple method to make global changes to the SMS.

All object names shall be alphanumeric and use Windows-type long filename conventions. The SMS shall allow all objects (door, personnel record, alarm, etc.) to be created with a unique 128-character name to provide the user with a fully descriptive object identifier. The system shall automatically create up to a 16-character alias from the object name to simplify the object's use in reports, applications programs, and alarms, for example.

2.2.4.2 Workstation and Password Privileges

The software shall be designed so that each user of the software can have a unique username and password. This username/password combination shall be linked to a set of capabilities within the software, set by, and only editable by, a system administrator. These sets of capabilities shall range from view only, acknowledge alarms, enable/disable, change values, program, administrate. The system shall allow the above capabilities to be applied independently to each class of object. The system shall allow an unlimited number of users to be configured per workstation.

The SMS shall allow the system administrator to configure each workstation with those functions that may be performed at that workstation. Individual user passwords shall also further restrict user functions and shall be specific to each user. Specific user restrictions shall include:

A. Access to screens or functions (e.g.: alarm monitoring, badge issue)
B. Specific tasks allowed (e.g.: modify data, view only)
C. Alarm Monitoring functions (e.g.: clear alarms, output control, traces, reports, Arm-Disarm)

If a user is denied access to specific functions, those functions shall not appear (or shall be ghosted) on the user's workstations or the status bar shall indicate "access denied" while that password is logged in. Once the System Administrator assigns a password, the user shall not have access to change his password. Passwords shall not print for any report.

The workstation privileges shall be those functions that are common to the user's password and the workstation logged into. The SMS shall support individual password restrictions for each user.

2.2.4.3 Create and Maintain Door Objects

Door objects shall be created either through the use of templates (as described in the System Configuration section) or by direct input by the user. The door object editor shall be tabular in design for easy navigation through the attribute fields.

The user shall be able from the door record to:

A. Document a description of the door
B. View or change the door's current state from unlocked to locked and vice-versa
C. Momentarily unlock the associated door
D. View the state of the door switch
E. Enable or disable the door state
F. Specify up to four (4) acceptable site codes
G. Designate a general PIN
H. Choose between Wiegand or ABA card type and select the appropriate bit format
I. Associate door hardware wiring to the appropriate input/output channels
J. Specify whether the door shall lock or shall not lock upon closure
K. Attach specific door unlock and door lock schedules
L. Define anti-passback rules
M. Define readers and attach associated controlled areas
N. View a dynamically updated list of the last 25 events associated with the door

2.2.4.4 User Activity Logging

The SMS System shall provide full user activity tracking of all keyboard functions. The activity log shall be comprehensive, recording the date and time of the activity, the

workstation the activity was performed at, the user that performed the activity, the program the activity occurred in. The SMS shall record changes to the database made by any user.

SMS shall log over 200 separate functions, including:

A. User Log-in and User Log-out.
B. Additions, Changes, and Deletions to Cardholder Management.
C. Temporary Pass Add and Delete.
D. Other critical database functions.

SMS shall log changes made to the access control configurations:

A. Changes to access privileges.
B. Holidays.
C. Time zone changes.
D. Other critical items.

SMS shall log all activity including alarms, alarms acknowledged, cleared, output control activity, trace, and other functions. The SMS System shall log a minimum of 1,000,000 events before the system history overwrites the oldest data.

The SMS shall provide a user activity report to query this information available in the SMS System activity log. The report shall be sorted by workstation, user, date and time or other selection criteria. On those occasions when historical data shall be needed, the user activity report shall be generated from an archived log as well as from the active SMS database.

2.2.4.5 Screen Format Design

The SMS shall allow a System Administrator to customize the employee record containing employee data. Employee records and badge lookup screens shall allow multiple pages, tabular in fashion, to be defined. Additional data fields shall be definable in the database. Sixty-four (64) user-defined data fields shall be available.

2.2.4.6 Integrated Development Environment

Each Alarm, Display, and Integrated workstation shall be equipped with an integrated development environment (IDE) to allow users the ability to write, edit, and de-bug the application programs resident in the PNC and Local Field Controllers. The IDE shall allow the display of multiple windows of application programs so users can quickly and easily “copy and paste” programming code using simple mouse clicks from one to another. The IDE shall also provide a tool set to allow users to quickly access libraries of commonly used object names, functions, values, and application programming keywords. Use of an IDE wizard shall permit use of pre-written application programs and creation of new programs that prompt for key values and create the program code automatically.

2.2.4.7 Reports

The SMS shall have the capability to provide as a minimum, the following standard reports:

A. User Activity Log
B. Alarm History Log
C. Door Status Report
D. Alarm Point Status Report
E. Controller Status Report

F. Workstation Status Report
G. Event History Log
H. Invalid Attempt Log
I. Valid Access Log
J. All Personnel Report
K. Disabled Personnel Report
L. Personnel By Department Report
M. Personnel By Area Privileges Report
N. Site Visitor Report
O. Lost Card Report
P. Input/Output Status Report
Q. Schedules Report
R. Company Listing Report
S. Termination Report
T. Badge Pending Expiration Report
U. Cards Not Used in X days (Deadbeat Report)
V. All Doors Report
W. All Events Sorted By Door
X. All Events Sorted By Person

Note: Each report shall print the date and time that the report was run. Reports shall be viewed on the screen when the report is run and the data has been compiled.

2.2.4.8 Custom Report Generation

The software shall contain a built-in custom report generator, featuring word processing tools for the creation of custom reports. These custom reports shall be able to be set up to automatically run or be generated on demand. Each workstation shall be able to associate reports with any word processing or spreadsheet program loaded on the machine. When the report is displayed, it shall automatically spawn the associated report editor such as MS Word, WordPerfect, Notepad, or Lotus 123.

A. Reports can be of any length and contain any point attributes from any controller on the network.
B. The report generator shall have access to the user programming language in order to perform mathematical calculations inside the body of the report, control the display output of the report, or prompt the user for additional information needed by the report.
C. It shall be possible to run other executable programs whenever a report is initiated.
D. Report Generator activity can be tied to the alarm management system, so that any of the configured reports can be displayed in response to an alarm condition.
E. The software shall allow the simple configuration of row/column (spreadsheet-style) reports on any class of object in the system. These reports shall be user-configurable and shall be able to extract live (controller) data and/or data from the database. The user shall be able to setup each report to display in any text font, color and background color. In addition the report shall be able to be configured to filter data, sort data and highlight data which meets user-defined criteria.

2.2.4.9 HTML Reporting

The above spreadsheet-style reports shall be able to be run to an HTML template file. This feature shall create an HTML "results" file in the directory of the HTML template. This directory can be shared with other computer users, which shall allow those users with access to the directory to "point" their web browser at the file and view the report. Access privileges shall be provided to allow the user the privilege of creating, deleting, updating, saving, processing, viewing and printing reports. The reports are to be printed on a dot matrix printer or on a laser printer. Once a report is developed and saved, the user shall have the option to permanently incorporate the report into the system's application by compiling the report definition into a report list available to any system Workstation. The database report configurator shall be an option available for any Workstation.

2.2.4.10 Color Graphic Map Configuration

The system shall have the ability to draw, edit and copy site color graphic maps using any third-party system software. The map configuration software shall import map drawings from the following formats at a minimum:

A. PC Paintbrush (.pcx)
B. TIFF (.TIF)
C. Lotus PIC (.pic)
D. Graphics Metafile (.CGM)
E. Targa (.TGA)
F. JPEG (.JPG)
G. MACINTOSH Pict 2 (.PCT)
H. Windows Bitmap (.BMP)
I. AutoCAD (.DWG)

These architectural-type maps shall allow the detailed layout of an entire structure, part of a structure, a floor or department within a building, or layout the periphery of a facility. Overview maps of an entire facility or campus shall be viewable as requested, or a specific entry point of a facility can be accessed via graphic panel objects that shall be able to be configured with multiple "tabbed" pages allowing a user to quickly view individual graphics of equipment, which make up a subsystem or system. Once a map has been drawn, the user shall have the ability to place system level icons of card readers and input points in the appropriate area to indicate their respective location on the map. This is to be accomplished by simply dragging the icon with the mouse to the appropriate location on the map. The SMS shall permit use of OCXs, and a full library of these controls including knobs, dials, gauges, switches, peripheral devices such as lights, motion detectors, doors, etc., shall be provided as part of the SMS software. The system shall allow various maps to be associated with each area to provide for the creation of a hierarchy of maps. The SMS shall support graphic maps having a resolution of 1024x768 pixels.

2.2.4.11 Remote System Support

The SMS shall include remote system support from the system manufacturer and/or local support dealer through remote diagnostics equipment that shall be included in at least one system Workstation. The capabilities to be provided shall allow a remote technical assistance center to analyze and perform any system diagnostic function using a modem and PC Anywhere remote communications software, or an approved equal, to allow

support personnel to troubleshoot and correct problems via a standard dial-up phone line. At a minimum a 28,800 baud modem shall be provided for a serial port at a system Workstation on the SMS.

2.3 SMS DATA EXCHANGE

2.3.1 Data Import/Export

The SMS shall provide a function that shall allow the end user, and/or Contractor, to create import and/or export scripts to/from the SMS. The SMS shall permit the unsolicited receipt of personnel files from third-party systems such as the Human Resource (HR) system on an ongoing basis.

Flexibility shall be inherent in this utility; the automated import process shall include "insert record," "update record," "update/insert record," and "delete record" (i.e. the assignment of access privileges). This utility shall allow the export of SMS System records into customer defined formats for use in external applications and systems. This utility shall allow the user to specify options, including files, fields, delimiters and/or fixed field lengths, formats, import/export mode, rules, and criteria. The user shall be able to indicate where the import or export file shall be located; on a floppy disk drive or hard disk drive. Once these ASCII-based files are received the SMS shall import automatically these records into the database without requiring user interaction. The SMS shall support a wide variety of formats for these personnel files. An application program within the SMS shall continuously query any shared resource on the network to which the HR generated file is to be written; and once a file is detected, the program shall initiate the reload of this file into the database using OLE servers at a user workstation. Records shall be capable of being added, deleted, and modified from the SMS database using this procedure. The SMS shall delete the HR file written to the shared resource immediately upon its import into the database.

2.4 SMS REDUNDANCY

2.4.1 Distributed Intelligence

In the event system communications is lost or the file server fails, all Primary Network Controllers (PNC) and Local Field Controllers (LFC) shall provide complete control, operation and supervision of all monitoring and control points. The PNC/LFC shall be configured with a UPS battery which shall support the field panel for a minimum of 4 hours. The PNC/LFC shall be installed with enough memory to support 78,000 cardholders.

The SMS shall incorporate performance tests and precautions so as to avoid system failure. In the event of a failure, transactions are to be stored in a PNC/LFC FIFO buffer until the field panel comes back on-line, at which time all data is uploaded to a Workstation. The PNC/LFC shall register as on-line with the Workstation when communications are re-established. A complete download of database and access information shall not be required because of off-line operation.

3 PRODUCTS

3.1 SMS WORKSTATION REQUIREMENTS

The SMS shall wholly integrate all access control and Photo Imaging functionality into a single database, networked environment. The SMS shall allow the incorporation of a networked integrated Workstation and a Photo Imaging Workstation sharing the same database on a local area network, or wide area network.

The SMS workstation software shall be configurable as a single workstation system (with built-in database) with the ability to upgrade to a multi-workstation system where the database is located on a central file server at a future time. The only costs associated with this conversion will be for additional hardware, associated operating system software and setup labor. The client software on multi-workstation system shall access the file server database program via an Ethernet TCP/IP network running at either 10MBPS or 100MBPS.

Workstation(s) and File Server shall be capable of residing directly on the TDS Ethernet TCP/IP LAN/WAN with no required gateways. Workstation(s) and File Server shall be capable of using standard, commercially available, off-the-shelf Ethernet infrastructure components such as routers and hubs. With this design the CUSTOMER 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 CUSTOMER's Information Systems Department as all devices utilize standard TCP/IP components. The system shall allow future expansion to include additional defined Workstations without losing functionality.

For multi-workstation systems, a minimum of 1,000 workstations shall be allowed on the Ethernet network along with the central file server. In this client/server configuration, any changes or additions made from one workstation shall automatically appear on all other workstations without the requirement for manual copying of files. Multi-workstation systems with no central database will not be acceptable.

In addition to the above LAN/WAN architecture support, the same workstation software (front-end) shall 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.

System administration operations shall be available from any Workstation on the system. System Administrator functions include the creation of CUSTOMER specific facility map configurations, alarm response instructions, access privileges, schedules, holidays, field hardware groups, arm-disarm groups, area control, output groups, application programs and all required system configurations.

3.1.1 Photo Imaging Workstation

The Photo Imaging Workstation shall be a complete electronic photo ID computer workstation that creates high quality, tamper-resistant color credentials in a production environment. This workstation shall enroll cardholders and maintain personnel information and images into the SMS relational database. This information can be recalled at any time to modify existing records, verify employee status, or reissue new credentials. The Photo Imaging Workstation shall be the primary workstation for employee enrollment, badge production and access privileges assignment to cardholders.

Provide as a minimum the following Badging Workstation Hardware:

A. (1) Dell 3 GHz Pentium 4 processor with 1GB of RAM
B. (3) USB 2.0 ports
C. (1) 10/100/1000 MBPS Ethernet NIC
D. (1) Raid 0, 100GB, SCSI hard disks
E. (1) CD-ROM drive
F. (1) DVD +/-RWDL drive
G. (1) 17" LCD monitor, Contrast Ratio 1000:1 min., Brightness 300 nits min.
H. (1) Optical Mouse
I. (1) Full function keyboard
J. (1)Audio sound card and speakers
K. (1) Integral Flashbus Video Capture Card
L. (1) Sony EVI-D70 PTZ Camera w/ IR Remote Control
M. Badging System Software
N. License agreement for all applicable software
O. (1) HP 1100 Laser Report Printer
P. (1) Fargo HDP600 Dual Sided Card ID Printer w/ Lamination Module
Q. (2) 30 Minute Uninterruptible Power Supply w/ auto shutdown
R. (1) Printing Supplies for 500 Cards
S. (500) Proximity Cards, Wiegand 37 bit format, characteristics as described below.

3.2 SMS FIELD HARDWARE DEVICES

3.2.1 Overview

The SMS shall be equipped with the field hardware required to receive alarms, administer all access granted/denied decisions, provide interface capability to third-party systems, and implement global operation strategies. Depending upon the configuration, the SMS field hardware shall be able to include any or all of the following features:

3.2.1.1 Real Time Clock (RTC)

A battery backed RTC shall provide the following information: time-of-day, day, month year, and day-of-week. In normal operation the system clock will be based on the frequency of the AC power. The system shall automatically correct for daylight savings time and leap years. The system shall provide means to synchronize the time between all controllers and workstations on the network.

3.2.1.2 Automatic Restart After Power Failure

Upon restoration of power, all controllers shall automatically and without human intervention: update all monitored functions; resume operation based on current, synchronized time and status, and implement special start-up strategies as required.

3.2.1.3 Approval Listings

As a minimum, all controllers shall be listed to comply with UL Standards 294 and 1076, FCC, and CE.

3.2.1.4 Indicator Lamps

As a minimum, all controllers shall have LED indication of Power Status, CPU/Activity status, Communication status and Error status.

3.2.1.5 Packaging

The Primary Network Controller and I/O modules shall be cased in a sleek, lightweight plastic housing. Built-in quick-release fasteners at the back of the module shall be provided for DIN rail mounting. These fasteners shall also permit panel mounting in a NEMA-1 style enclosure. The mechanical design will incorporate built-in cable management troughs for wiring runs.

3.2.2 Primary Network Controllers

Primary Network Controllers (PNC) shall provide overall system coordination, accept control programs, perform automated control functions and security management and perform all necessary mathematical functions. It shall also be possible to permit multi-user operation from workstations and laptop service tools connected either locally or globally.

The PNC communication will be based around the TSD Ethernet network at 10 MBPS. A separate, dedicated, security network is not needed and thus not acceptable. The PNC shall be a native TCP/IP device and shall not require use of terminal servers or other devices to allow direct Ethernet connectivity. Use of PC's that serve as Ethernet gateways to the field controllers shall also not be acceptable.

The interface link to other systems shall take place at the PNC and not at a central computer, so that in the event of failure of the controller the rest of the system shall continue to function correctly. The interface links shall be provided to other systems such as fire detection, public address, and vehicle management, with the PNC mounted adjacent to these systems' central processing units. The system protocols shall be transferred via embedded programmed communication drivers or the SMS application software programming, which shall be resident within the PNC. This interface shall provide bi-directional communications between the SMS and the other systems so that complete integrated control and monitoring could be performed for all systems.

3.2.2.1 PNC's shall be microprocessor-based, multi-tasking, multi-user, and use real-time, digital control processors. Each control panel shall consist of modular hardware including power supply, CPU board, and input/output modules. A sufficient number of PNC's shall be supplied to fully meet the requirements of this specification and the attached point list. PNC's for telephone dial-up sites shall be of the same design as the Ethernet control units but without the plug-in Ethernet network interface card (NIC), i.e., PNC's, that include a NIC, shall be interchangeable whether used on a LAN/WAN or a dial-up site.

3.2.2.2 All PNC's on the Ethernet TCP/IP LAN/WAN shall be capable, out-of-the box, to be set up as a Web Server. The PNC shall have the ability to store HTML code and "serve" pages to a browser. Any computer on the network running any operating system capable of running a standard Internet browser shall allow the user to access real-time data from the PNC's via a standard Internet browser (Netscape / MS-IE) utilizing a TCP/IP Ethernet connection. Graphics and text-based pages shall be

constructed using standard HTML code. The interface shall allow the user to choose any of the standard text or graphics-based HTML editors for page creation. It shall also allow the user to generate custom graphical pages and forms. The WEB interface shall be capable of password security, including validation of the requesting PC's IP address. The WEB interface shall allow the sharing of data or information between any controller, or process or network interface (BACnet, LON and TCP/IP) that the SMS has knowledge of, regardless of where the point is connected on the SMS network or where it is acquired from. The SMS WEB server shall have the ability to acquire any necessary graphics using standard pathing syntax within the HTML code mounted within the SMS WEB server. External WEB server hardware and software are not acceptable.

3.2.2.3 The PNC shall be equipped with an application programming environment to allow users to create custom applications. All application programs are to be developed using an easy-to-use plain English oriented programming language inclusive of a complete set of Boolean logical expressions. Use of high level programming languages such as C or C++, or system manufacturer defined "canned" application programs will not be permitted. Application programs shall be used to enhance the functionality of the SMS by permitting custom control strategies and third-party user interfaces to be implemented. All programs shall be self-documenting by allowing the users to place comments anywhere within the body of the program. All global data shall be capable of being referenced at any PNC or Local Field Controller and used in application specific programs to control an output, or multiple outputs at that controller. Use of simple matrices to allow linking of inputs to outputs to meet this intent is not acceptable.

3.2.2.4 Memory

A minimum of 8MB of RAM with math coprocessor shall be provided for Ethernet-based PNC's. In addition, each controller shall contain a minimum of 4MB of 'Flash EEPROM' memory for the system firmware. Firmware shall be updated on-line or over a standard dial-up modem connection. Use of EPROM-based firmware requiring chip change-out to perform upgrades is not acceptable.

3.2.2.5 Communication Ports

Each Ethernet based PNC shall provide a powerful multi-user solution for network communications and information management across a high speed Ethernet based network at 10 MBPS. The PNC may be supplied to operate on Ethernet using the TCP/IP protocol or over standard dial-up modem.

Backbone based controllers shall provide communication to both the high speed Ethernet LAN and the Secondary Level Field bus. For Ethernet based Controllers, connections shall be available for 10Base-T, 10Base-2 and 10Base-FL media.

As a minimum the PNC shall have built-in network communication error checking to the International Standard CRC16. Typical communication media shall be 10Base-T

(unshielded twisted pair) cable, the SMS vendor shall provide converters for duplex fiber optic transmission, particularly for external cable runs.
In addition, this PNC shall provide 4 programmable RS-232/RS-485 ports for the Secondary Field Bus or printers, modems, terminals, and third-party software interfaces. A LON communications bus shall also exist for a family of application oriented I/O modules. The I/O bus shall permit LON communications using RS-485 or FTT-10.

3.2.2.6 Networking

Each PNC shall be able to exchange information with other PNCs over the high speed LAN. The network structure shall be transparent such that each controller may store and reference all global variables available in the network for use in the PNCs calculations or programs. Each PNC shall also have access to any of the readers, card records, inputs, outputs, and calculated variables contained in Field controllers that are connected to it through its local field bus.

3.2.2.7 Power Supply

PNC's shall operate from 100 to 240 VAC 50/60 Hz power. Line voltage below the operating range of the system shall be considered outages. The controller shall contain over voltage surge protection, and require no additional AC power signal conditioning.

3.2.2.8 Battery Back-up

The PNC battery backup UPS circuit with built-in battery charger shall provide automatic battery backup UPS power in event of AC line failure. Each PNC shall have a programmable battery back-up providing a choice of shutdown options, at least 72 hours of battery backup to maintain all volatile memory and real-time clock. Or, this battery shall provide for full UPS operation for a minimum of 60 minutes.

3.2.3 Secondary Network Controllers

3.2.3.1 Local Field Controllers

Local Field Controllers (LFC) shall provide intelligent, stand-alone control of the facility. They shall contain their own internal RAM memory and continue to operate all local control functions even in the event of a Primary Network Controller processor failure. In addition, the LFC's shall be able to communicate to other controllers on its Field Bus even in the event of PNC failure. The LFC's shall maintain data integrity during a power failure through UPS or battery backed RAM.
LFC shall have the following:

A. Integrated testing and diagnostics for self-testing.
B. Suitable interfaces and appropriate universal inputs and outputs for the connection of mechanical or electrical plant
C. Manual override facilities on all universal outputs for testing and commissioning purposes.
D. Unique software address point on the network that does not require the manual setting of DIP or DIL switches.
E. The provision of a service port facility to permit local access to be established as well as global networking data interrogation facilities.

These LFC's shall have facilities for local override, control and monitoring via, either a built-in LCD keypad and display, or a remote wall/room mounted LCD keypad and display. The override displays shall be freely programmable, to display or allow

adjustment of any parameter within the total system, and not just the associated field processor points.
The LFC's shall cover the following range of types:

A. Access Control
B. Intrusion Detection

The LFC shall be equipped with an application-programming environment to permit users to create custom applications. All application programs developed using an easy-to-use plain English oriented language. Use of high-level programming languages such as C or C++, or system manufacturer-defined "canned" application programs shall not be permitted. Application programs shall be used to enhance the functionality of the SMS by permitting custom control strategies and third-party user interfaces to be implemented. All programs shall be self-documenting by allowing the users to place comments anywhere within the body of the program. All global data shall be capable of being referenced at any Local Field or PNC and used in application specific programs to control an output, or multiple outputs at that controller. Use of simple matrices to allow linking of inputs to outputs to meet this intent is not acceptable.

3.2.3.2 Access Controllers

3.2.3.3 Description

Access controllers shall provide standalone operation of up to 8 doors on a standard controller. Each controller shall store the personnel records for up to 78,000 card (or PIN) holders. In addition, each access controller contains inputs for monitoring door contacts, motion detectors and other supervised security input devices. Control programs shall be stored in battery-backed RAM. Each controller shall have the intelligence to perform all access control strategies, without communication to other controllers, for control functions not requiring data from other controllers.
Each controller shall be able to have its program edited and/or modified either locally through a laptop service tool or through a Workstation connected to a Primary Network Controller. Each access controller shall complete its internal scan in less than one second. Each scan shall consist of updating of readers and keypads, supervised inputs, importing of data from other controllers, performing mathematical calculations and sequencing appropriate outputs for local control of doors, elevators, and other related devices. The maximum time for door opening from the proper presentation of a card shall be less than 1 second.

3.2.3.4 Memory

Local Access Controllers shall have a minimum of 256 K RAM, 512 K ROM, and 1 K EEPROM.

3.2.3.5 Communication Ports

Access Controllers shall provide communication to the field bus. In addition, a port shall be provided for connection to a laptop service tool to support local programming and parameter changes. It shall be possible from this port to access and program any controller on the field bus, any Primary Network Controller on the high speed LAN, or any Field Controller on a different field bus.

3.2.3.6 Input/Output

A. Inputs

The input section of the access controllers shall provide up to 8 card reader channels and 8 keypad channels. In addition, up to 32 supervised inputs on the controller shall be used for request-to-exit devices, door status devices, and general digital monitoring.

The card reader inputs shall accept Wiegand or ABA style readers including swipe, proximity, magnetic stripe (Track 2), and biometrics. Swipe readers shall be powered directly from the controller. Proximity readers shall have an external 12 VDC source.

Each supervised input circuit shall be able to distinguish among normal operation, a short, open circuit, or a fault. Inputs shall be able to utilize double resistor-based supervised circuits.

A normally open momentary switch shall be used for external tamper detection. The on-board switch shall detect whenever the cabinet of the access controller has been opened. A rear tamper switch shall also be provided to detect removal of the cabinet from the wall.

B. Outputs

Output types shall be digital for control of doors. Each Controller shall provide up to 8 door outputs and 1 auxiliary output for ON/OFF control of annunciators, lights, etc. Outputs shall be available with built-in override switches.

The digital outputs shall be rated for 24 VAC/DC operation at 5 amps minimum.

Each output shall have a corresponding LED for visual indication of its state.

A board-mounted switch shall be provided for each output allowing local overrides. The position of the switch shall be detectable in software and available for alarm annunciation. If override switches are not provided on board, external switches shall be provided and wired to include feedback and alarming of the switch position, and shall be mounted in a locked enclosure.

3.2.3.7 Networking

Each Local Field Controller shall be able to exchange information between other Field Controllers and Primary Network Controllers during each field bus scan. The network structure shall be transparent such that each Field Controller may store and reference any global variables available in the network for use in the local controller's calculations or programs. Each Field Controller shall be capable of storing and referencing global variables. This peer-to-peer capability shall permit full entry/egress operation across any controllers on the network.

3.2.3.8 Power Supply

The LFC shall have a built-in, selectable power supply of 120/240 VAC 60/50 Hz, with a tolerance of +/- 20%.

3.2.3.9 Battery Backup

Each access controller shall have at least 72 hours of battery backup to maintain all volatile memory. Provide UPS for full operation for a minimum of 2.5 hours, expandable by use of additional batteries.

3.2.3.10 Packaging

The standard housing for the access controllers shall be a minimum of NEMA 1 rated enclosure. The enclosure shall include a ruggedized key lock to prevent unauthorized access, external power indication, and rear tamper switch.

3.2.4 LON Communications I/O Modules

3.2.4.1 Local I/O Modules

Local I/O modules shall be provided to complement Local Field Controllers in a distributed or centrally located fashion. The I/O modules shall contain their own internal ROM, EEPROM, and SRAM. The I/O Modules shall maintain data integrity during a power failure through UPS or battery backed RAM.

Local I/O modules shall have the following:

A. Integrated testing and diagnostics for self-testing.
B. Suitable interfaces and appropriate universal inputs and outputs for the connection of mechanical or electrical plant
C. Manual override facilities on all universal outputs for testing and commissioning purposes.
D. Unique software address point on the network that does not require the manual setting of DIP or DIL switches.

The I/O Modules shall cover the following range of types:

A. Access Control
B. Intrusion Detection and Digital Control
C. Video Switching

Manual override facilities on all outputs shall be provided for testing and commissioning purposes.

3.2.4.2 Networking

All modules shall be able to exchange information between other I/O Modules, Local Field Controllers, and Primary Network Controllers during each field bus scan. This peer-to-peer capability shall permit full entry/egress operation across any controllers on the network.

3.2.4.3 Power Supply

The access control module shall be fed from a low voltage, 24 VDC power supply with battery backup.

3.2.4.4 Indicator Lamps

As a minimum, all modules shall have LED indication of Power Status, CPU/Activity status, Communication status and Error status.

3.2.4.5 Packaging

Local I/O modules shall be cased in a sleek, lightweight plastic housing. Built-in quick-release fasteners at the back of the module shall be provided for DIN rail mounting. These fasteners shall also permit panel mounting in a NEMA-1 style enclosure. The mechanical design shall incorporate built-in cable management troughs for wiring runs. The enclosure shall include a ruggedized key lock to prevent unauthorized access, and be rated for outdoor use if mounted outside.

3.2.5 Access Control Module

3.2.5.1 Description

Access Control I/O modules shall provide the interface for one card reader/keypad controlled door, and the Primary Network Controller. Each access controller shall include a Wiegand or ABA style card reader input; at least three supervised inputs for door status, exit request, and other inputs; and at least two relay outputs for the door lock and an optional auxiliary controlled point.

Each I/O module shall have the intelligence to perform all degrade-mode access control strategies stored in the I/O modules non-volatile EEPROM, without communication to other modules, in the event of a communications loss to the Primary Network Controller. Each access control module shall complete its internal scan in less than one second. Each scan shall consist of updating of readers and keypads, supervised inputs, importing of data from other controllers, performing mathematical calculations and sequencing appropriate outputs for local control of doors, elevators, and other related devices. The maximum time for door opening from the proper presentation of a card shall be less than 1 second.

3.2.5.2 Input/Output

A. Inputs

The input section of the access I/O modules shall provide a minimum of 1 card reader channel and 1 keypad channel. It shall be possible to expand the number of card readers by simply adding I/O modules to the LON communications network. In addition, there shall be 3 supervised inputs on the base controller for request-to-exit devices, door status devices, and general supervised input monitoring.

The card reader inputs shall accept Wiegand or Magnetic Stripe style readers. Up to 64 bits per card formats shall be supported for Wiegand applications and up to 255 bits per card formats shall be supported in ABA applications.

Each supervised input shall be able to distinguish among normal operation, a short, open circuit, or a fault. Inputs shall be able to use double resistor-based supervised circuits.

A normally open momentary switch shall be used for external tamper detection. This switch shall detect whenever the cabinet of the access control module has been opened.

The access control module shall support Wiegand output or ABA output keypads. The keypad data shall be superimposed onto the Wiegand or ABA data lines.

B. Outputs

Output types shall be digital for control of doors. In addition to the door output, the control module shall contain one auxiliary output for ON/OFF control of annunciators, lights, etc. Outputs shall be available with built-in override switches.

The digital outputs shall be rated for 24 VAC/DC operation at 5 amps minimum. Each output shall have a corresponding LED for visual indication of its state.

A board-mounted 3-position switch shall be provided for each output allowing local overrides. The position of the switch shall be detectable in software and available for alarm annunciation. If override switches are not provided on board,

external switches shall be provided and wired to include feedback and alarming of the switch position, and shall be mounted in a locked enclosure.

3.2.6 Intrusion Detection and Digital Control Module

3.2.6.1 Description

Intrusion Detection and Digital Control modules shall provide inputs and outputs to monitor and control non-reader-based system points, such as door contacts, motion sensors, gate actuators, etc.

3.2.6.2 Input/Output

A. Inputs

The LON Intrusion Detection Module shall provide 8 universal input points, using two-piece, removable screw terminal connectors.

Each supervised input circuit shall be able to distinguish among normal operation, a short, open circuit, or a fault. In addition, these same inputs can be configured for analog operation to monitor temperatures, humidity, or other transducers outputting industry standard signals of 0 - 5 VDC and 4 - 20 mA.

B. Outputs

The Digital Control Module shall provide 4 relay outputs, using two-piece, removable screw terminal connectors. The output type shall be digital using Form-C relays capable of switching 24 VAC/DC at 5 amps. Each output shall have a corresponding LED for visual indication of its state.

Outputs shall be available with built-in override switches. A board mounted switch shall be provided for each output allowing local overrides. The position of the switch shall be detectable in software and available for alarm annunciation. If override switches are not provided on board, external switches shall be provided and wired to include feedback and alarming of the switch position, and shall be mounted in a locked enclosure.

3.2.7 Video Switch

3.2.7.1 Description

The Video Switch Module shall provide switching of surveillance cameras to video monitors or VCRs. Up to eight video signal inputs and four high-speed buffered outputs shall be available. Any of the eight input lines shall be capable of being connected to any of the four outputs. Date/time stamping and/or text stamping on live or recorded video images shall also be available.

3.2.7.2 Input/Output

A. Inputs

The Video Switch Module shall provide 8 video signal inputs using 75 ohm BNC connectors.

B. Outputs

The Video Switch Module shall provide up to 4 high-speed, buffered outputs using 75ohm BNC connectors. Each output shall have a voltage gain of two and shall be capable of driving 75 ohm back-terminated lines.

3.2.8 Proximity Card Readers

TSD requires the SMS to provide HID Proximity Card Readers. This product line offers a variety of readers to match TSD needs. Each reader shall offer a low profile, rugged, weatherized polycarbonate sealed enclosure with multi-color LED's and a sounder for access granted and denied indications. Each shall be mountable indoor or outdoor.

3.2.9 Keypads

Keypads approved for the SMS shall be shall be the Essex Electronics 12 Pad or approved equal. Keypads shall contain 3 columns by 4 rows containing the characters 0 through 9, the pound (#) and the star (*) sign. The keypads shall be suitable for either indoor or outdoor use.

3.2.10 Field Hardware Power Supplies

Power Supplies for field hardware shall be compatible with the SMS equipment installed. Power supplies shall be regulated, linear and isolated versions for the field panels and other equipment. Each version shall be available in UPS with battery back-up and non-UPS models. All power supplies shall be housed in tampered, locked enclosures.

3.3 CREDENTIALS

3.3.1 General

The SMS System shall utilize card products designed specifically for security applications.

3.3.2 SMS Proximity Cards

Proximity shall be an access control/identification technology that utilizes radio frequency (RF) circuits in microchip form. The microchips are encoded and transmit the encoded information when activated.
The SMS shall be provided with the following proximity card design:

A. The Proximity Card shall be used with any of the listed proximity card readers. It shall be a polycarbonate-based card.
B. The Proximity Card shall be a PVC card that employs proximity detection and that shall allow the printing of cardholder record fields directly on the card.
C. The Proximity Card shall be capable of allowing for direct printing of both sides of the card using a dye-sublimation/resin thermal transfer printing process.
D. The Proximity Cards will be HID 37-bit Wiegand format.

3.3.3 SMS PVC Card

The SMS Contractor shall provide a credit card size (3.370" x 2.125" OD), or approved equal PVC (PVH or PVCH) card. The PVC cards shall be printed by placing them in the dye-sublimation/resin thermal transfer printer. Traditional paper media inserts shall not be acceptable. PVC shall allow a full-frontal print surface without edges. It shall be difficult to alter, durable, consistent in shape and size, and flexible in design.

3.3.4 Specific Card Features

The identification card shall meet TSD requirements to incorporate multiple use and/or security features into one common credential. The following custom features shall be included:

A. Card shall be credit card size, 3.370" x 2.125" OD in a Portrait/Landscape format.
B. The TSD logo shall be printed thermally on the Digital ID Printer on a portion of the card. The SMS System shall generate and print logos.
C. A visible light bar code shall be included in the badge design offering the cardholder's employee number from the cardholder record.
D. The following database fields shall print on the thermal media from the cardholders database record:
    1) First Name
    2) Last Name
    3) Division/Department
    4) Expiration Date
    5) Card Number
E. A white rectangle signature panel shall be provided, located on the exterior of the back of the card. This panel shall accept a signature written with a pen.
F. Pre-printing shall be used on the backside to provide card return/issue information that shall be common to all cards produced.
G. Pre-printed shall include a three-color logo.

A rendition of the required card is provided as an appendix. A sample card may be included with the Contractor proposal package.

4 EXECUTION

4.1 PROJECT MANAGEMENT

Upon receipt of a purchase order, the Contractor shall assign the project to a specific Project Manager. Project Managers are selected for their skills and experience in organizing complex, multifaceted projects. This will assure effective planning and communication among the numerous people whose efforts are coordinated during the life of the project. The Project Manager shall provide the following services:

A. Written and agreed project plans detailing the successful installation and acceptance of the system within specified time frames.
B. Coordination and scheduling of all Contractor deliverables through project completion including:
C. Hardware and software configurations.
D. Installation of equipment.
E. User training.
F. Documentation and specific project related requirements.
G. Provide services or consultation for:
    - Site preparation.
    - Credential design.
    - Screen layout design, formats.
    - Database design/configuration.
    - Data input options.
    - System Administration.
H. Primary point of TSD contact for all project communication from receipt of order through final system acceptance.
I. Preparation of clearly defined project-specific system acceptance criteria.
J. Appropriate status reporting, attendance at all project meetings.
K. Formal commissioning of specific project documentation and as-built drawings to the TSD System Administrator.
L. Preparation of agreement for Contractor continuing maintenance and schedule.

4.2 INSTALLATION

Installation of the SMS shall include the appropriate equipment and shall be performed by a factory-trained Contractor Installer. The installation shall be completed to these specifications and project plans as required by TSD. A comprehensive customer site-planning guide for the SMS shall be provided. Adherence to the specific requirements of this document will assist in ensuring a successful System installation. The installation shall include the following:

A. Site planning and system configuration of field hardware and SMS.
B. Complete hardware setup of all system Workstations and peripherals.
C. Complete configuration of all system Workstations, peripherals and installation of field hardware.
D. Setup of specific network software configuration requirements.
E. Badge Design and Screen Format installation and verification.

F. Complete system diagnostics verification.
G. Complete system operation verification.
H. Problem reporting and tracking.
I. Project specific installation log.
J. Completion of specific customer acceptance test plans.
K. Formal turnover of the specific project installation documentation.

NOTE: Regulated power shall be provided by SMS contractor with dedicated circuits for the installed System. All circuit breakers shall be properly identified and equipped with a "lock" to prevent inadvertent actuation of the breaker.

4.3 FIELD QUALITY CONTROL

4.3.1 General

Quality control services include inspections and tests and related actions including reports, performed by independent government agencies, governing authorities, and the Contractor. They do not include Contract enforcement activities performed by the Engineer.

Inspection and testing services are required to verify compliance with the requirements specified or indicated. These services do not relieve the Contractor of responsibility for compliance with Contract Document requirements.

4.3.2 Quality Assurance

Source Limitations: To the fullest extent possible, provide products of the same kind, from a single source, and from the same manufacturer.

Descriptive Specification Requirements: Where specifications describe a product of assembly, listing exact characteristics required, with to without use of a brand or trade name, provide a product or assembly that provides the characteristics or otherwise complies with contract requirements.

Performance Specification Requirements: Where specifications require compliance with performance requirements, provide products that comply with these requirements, and are recommended by the manufacturer for the application indicated. General overall performance of a product is implied where the product is specified for a specific application.

4.3.3 Installation of Products

Comply with manufacturer's instructions and recommendations for installation of product in the applications indicated. Anchor products securely in place, accurately located and aligned with other work.

The Contractor is responsible to remedy defects due to faulty workmanship and materials that appear within one year from the date of acceptance in accordance with the General Conditions, unless Specifications sections specify a different duration.

4.4 SYSTEM ACCEPTANCE TEST

4.4.1 Phased Testing

A phased acceptance test and performance demonstration program shall be developed and documented by the Contractor under the direction of the SMS Systems Engineer. These requirements shall apply to all system components and software, including, but not

limited to all system computers, field panels, card reader devices, Photo Imaging system peripherals and interface capability. The Contractor shall perform the tests and document the results under the supervision and witnessing of the SMS Systems Engineer. Operational scenarios shall be developed and used by the Contractor to simulate the actual use of the system in the normal environment of the TSD facility. The TSD reserves the right to modify the Contractor's plan or develop new operational test and evaluation procedures to effectively document system operations.

4.5 SYSTEM DOCUMENTATION

Complete documentation shall be provided with the system. The documentation shall completely describe all operations, each program, data sets and the hardware and peripherals. All updates, addendum and adjustments to the documentation shall be provided at no additional charge, in the same quantities as originally required. Each Division shall define the initial quantities.

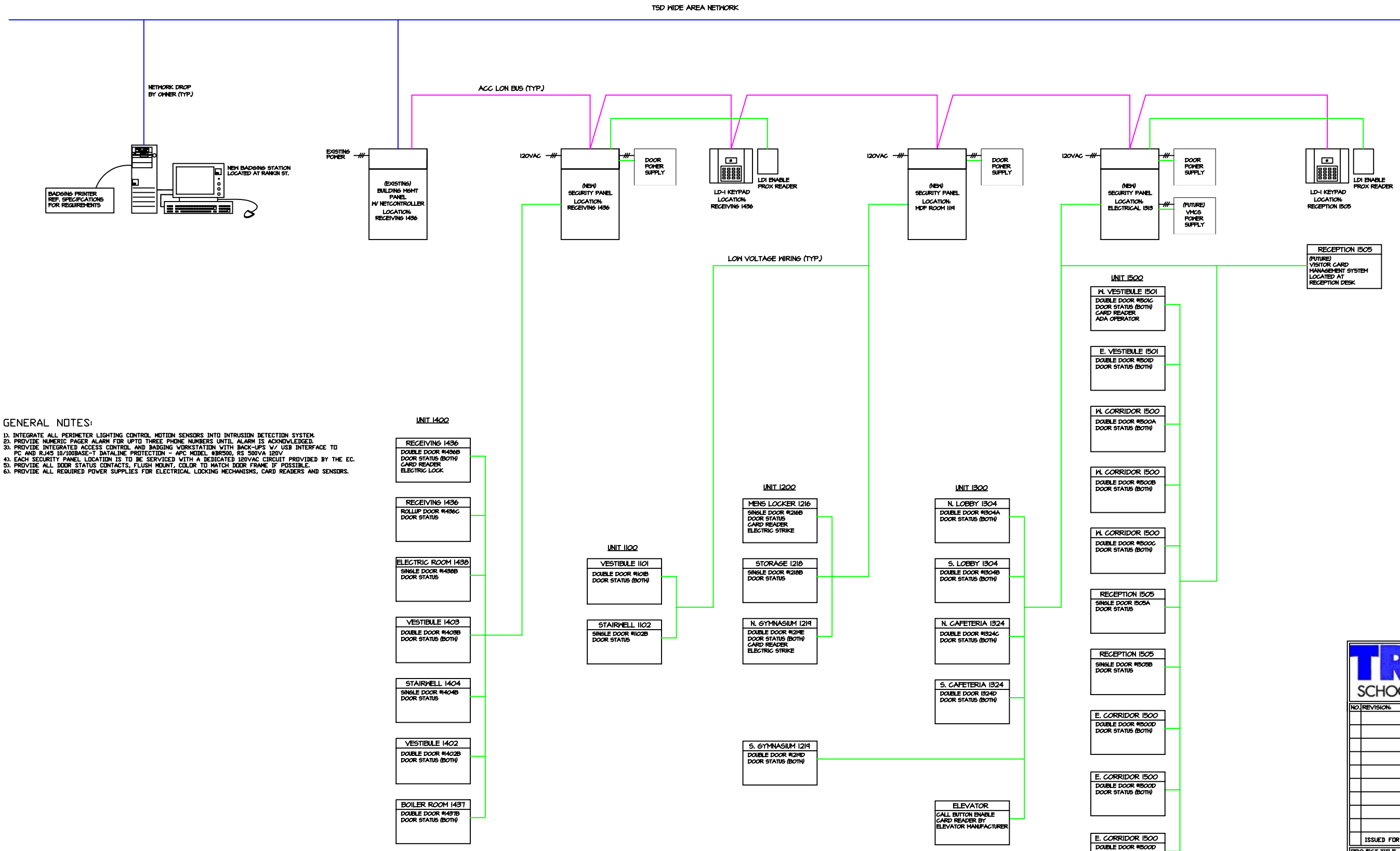
A. System Administrator Manual - Overview and step by step guide and instructions detailing all System Administrator responsibility and authority.
B. User Manual - Step by step guide and instructions detailing all system user functions and responsibilities.
C. Photo Imaging Users Manual - Step by step guide and instructions detailing all image capture, badge creation, cardholder modification and all Photo Imaging user functions and responsibilities
D. Alarm Monitoring Manual - Step by step guide and instructions detailing all alarm monitoring system user functions and responsibilities.
E. Technical Maintenance Manual - Shall be a comprehensive and detailed document providing all maintenance action, system testing schedules, troubleshooting flowcharts, functional system layout and block diagrams and schematic diagrams of all system wiring.

4.6 SYSTEM TRAINING

Proposal shall include pricing to receive system training on-site by a representative of the SMS manufacturer. Training shall take place before the system is operational as described in the project schedule. A detailed description of the training material shall be included in the submittal package. All training courses shall enable the attendees to be capable of all normal system operations within their respective positions.

A. System Administrators shall receive a course detailing the system functions and operations. Course shall offer configuration training on all aspects of the system including data import-export, reports, cardholder management, system workstations, peripherals and field hardware.
B. Photo Imaging Users shall receive a course detailing the functions and operations of all aspects of credential production, image capture, cardholder record management, reports and Workstation peripherals which are part of the Photo Imaging process.
C. Alarm Monitoring Users shall receive a course detailing the operation of all aspects of alarm monitoring functions, reports, error messages, alarm handling, output relay control and general overview of field hardware.

End of Specifications



GENERAL NOTES:

1). INTEGRATE ALL PERIMETER LIGHTING CONTROL MOTION SENSORS INTO INTRUSION DETECTION SYSTEM.
2). PROVIDE NUMERIC PAGER ALARM FOR UPTO THREE PHONE NUMBERS UNTIL ALARM IS ACKNOWLEDGED.
3). PROVIDE INTEGRATED ACCESS CONTROL AND BADGING WORKSTATION WITH BACK-UPS W/ USB INTERFACE TO PC AND RJ45 10/100BASE-T DATALINE PROTECTION - APC MODEL #BR500, RS 500VA 120V
4). EACH SECURITY PANEL LOCATION IS TO BE SERVICED WITH A DEDICATED 120VAC CIRCUIT PROVIDED BY THE EC.
5). PROVIDE ALL DOOR STATUS CONTACTS, FLUSH MOUNT, COLOR TO MATCH DOOR FRAME IF POSSIBLE
6). PROVIDE ALL REQUIRED POWER SUPPLIES FOR ELECTRICAL LOCKING MECHANISMS, CARD READERS AND SENSORS.

ACCCESS CONTROL WIRE LEGEND
- INFINET
- ACC LON BUS
- TSD WAN
- LON VOLTAGE

TROY SCHOOL DISTRICT

NO.	REVISION:	DATE:
	ISSUED FOR BIDS	11/01/06

PROJECT TITLE:
NEW BAKER SCHOOL
SECURITY MANAGEMENT SYSTEM

SHEET TITLE:
SECURITY MANAGEMENT SYSTEM
MASTER RISER DIAGRAM

DATE: 10/31/06	FILE NAME: NBK 0-000	SCALE: NTS
APPROVED BY: MB	ENGINEERED BY:	DRAWN BY:
PROJECT NO. N/A	SECTION NO. N/A	SHEET NO. N/A

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

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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
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	

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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 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

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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	

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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	

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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	

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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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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

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
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	

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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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

Official Request #: 1241
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Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

Official Rate Schedule

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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
Project Description: SECURITY SYSTEM INSTALLATION

Project Number: NEW BAKER MIDDLE SCHOOL
County: Oakland

Official Rate Schedule

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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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County: Oakland

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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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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	

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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
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County: Oakland

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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	

Official Request #: 1241
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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
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	

Official Request #: 1241
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Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
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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Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
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 **Bid 9371Securtiy System - New Baker Middle School** **Description**	**CO.: MCMI** **TERMS: Net 30** **FIRM: 30 Days** **Total Price**
Access Control and Intrusion Security System for New Baker Middle School	
Access Control System	35,500.00
Intrusion Detection System	41,400.00
Badging Station Equipment	20,800.00
Payment and Performance Bond	1,800.00
TOTAL	**99,500.00**
	Included in this proposal but not specified: Installation of all 120VAC power wiring for the security systems. **Not Included in this proposal:** Installation of elevator travel cables, cab card reader mounting and cab control prep for access control Door rough-in for status, electric strikes and card readers. Door hardware electric strikes and locks.

D/A Conntrol Inc. - No bid
Security Corp. - No Bid
Detection systems & Eng. Co. - No Response
Shebar CCTB Security Systems - No Response
Interstate Security Inc. - No Response
Datanet Systems, Inc. - No Response