

architecture  
interiors & technology  
engineering



Integrated Design Solutions

## Project Manual

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492

IDS Project No. 03234-1000 BP27

February 12, 2008  
Bids

# Project Manual

**Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan**

**for**

**Troy School District  
Technology Resource Center  
4420 Livernois Road  
Troy, Mi 48098**

**Integrated Design Solutions LLC**  
Architecture, Engineering, Interiors & Technology  
888 W Big Beaver, Suite 200  
Troy, Michigan 48084  
248.823.2100  
Fax 248.823.2200  
[www.ids-troy.com](http://www.ids-troy.com)

IDS Project No. 03234-1000 BP27

**SECTION 00010 - TABLE OF CONTENTS**

<b>SECTION</b>	<b>TITLE</b>	<b>PAGES</b>
<b>BIDDING REQUIREMENTS, CONTRACT FORMS AND CONDITIONS OF THE CONTRACT</b>		
00001	Title Page .....	1 only
00010	Table of Contents .....	1 only
00100	Advertisement for Bids .....	1 thru 2
00200	Instructions to Bidders .....	1 thru 6
----	Prevailing Wage Rate Schedules .....	1 thru 24
00410	Bid Forms .....	1 thru 6
00450	Supplement to Bid Form – Familial Disclosure Statement.....	1 only
----	AIA Document A107-1997 Abbreviated Standard Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope ..	1 thru 16
00800	Supplementary Conditions and Additional Conditions .....	1 thru 5
<b>DIVISION 1 THROUGH DIVISION 6</b>		
Not Applicable		
<b>DIVISION 7 - THERMAL AND MOISTURE PROTECTION</b>		
07841	Through-Penetration Firestop Systems .....	1 thru 6
<b>DIVISION 8 THROUGH DIVISION 15</b>		
Not Applicable		
<b>DIVISION 16 - ELECTRICAL</b>		
16015	Technology General Requirements .....	1 thru 10
16740	Wireless Network Equipment.....	1 thru 8
16790	Telephone and Data Communication Systems .....	1 thru 10
16795	Voice and Video Communication Systems .....	1 thru 28

**END OF TABLE OF CONTENTS**

**SECTION 00100 - ADVERTISEMENT FOR BIDS**

**DATE:** February 12, 2008

**PROJECT:** Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

**OWNER:** Troy School District  
4400 Livernois  
Troy, Michigan 48098

**ENGINEERING/  
TECHNOLOGY  
DESIGNER:** Integrated Design Solutions, LLC  
Architecture, Engineering, Interiors & Technology  
888 W. Big Beaver, Suite 200  
Troy, MI 48084  
(248) 823-2100  
(248) 823-2200 fax

**BIDS RECEIVED:** Until 3:00 pm local time on March 4, 2008, the Owner will receive sealed Bids for the work as set forth in the Bidding Documents at:

Troy School District  
Purchasing Department  
1140 Rankin  
Troy, Michigan 48083

ATTN: Frank Lams  
Purchasing Supervisor

All bids will be publicly opened and read aloud at 3:00 pm. A bid tabulation summary will be available.

The Bidding Documents will be on file on and after February 12, 2008 and may be examined at the following locations during regular business hours, Monday through Friday.

World Wide Web: Troy School District  
Specifications Only: [http://www.troy.k12.mi.us/purchasing/items\\_out\\_for\\_bid.htm](http://www.troy.k12.mi.us/purchasing/items_out_for_bid.htm)

The offices of: Integrated Design Solutions, LLC, 888 W. Big Beaver, Suite 200, Troy, MI 48084, (248) 823-2100  
Construction Association of Michigan, 43636 Woodward Ave., Bloomfield Hills, MI 48302, (248) 972-1000  
McGraw Hill Construction, 20475 Woodingham Dr., Detroit, MI 48221, (313) 342-6449  
Construction New Service, 1773 R W Berends Dr. SW, Wyoming, MI 49519, (616) 530-3940  
Builders Exchange of Grand Rapids, 4461 Cascade Road S E, Grand Rapids, MI 49546, (616) 949-8650

The Engineer/Technology Designer will furnish one (1) sets of documents to the bidders at a \$50 refundable deposit.

A recommended pre-bid conference is scheduled for February 21, 2008 at 9:00 am local time. All Bidders are responsible for attendance at the pre-bid conference. Bidders shall meet in Conference Room 1 at Troy School District International Academy East Building, 1291 Torpey Dr., Troy, Michigan, 48083.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

Immediately following the pre-bid conference, the Owner will make available the school building for Bidders to examine site and local conditions.

Each Bid shall be accompanied by a Bid Security in the form of a certified check, cashier's check, money order or bid bond made payable to Troy School District in an amount not less than five percent (5%) of the base bid as a Bid guarantee.

The successful Bidder shall provide a Performance Bond and a Labor and Material Payment Bond covering the faithful performance of the Contract and payment of all obligations arising thereunder, each in the amount of one hundred percent (100%) of the contract amount. The cost of such bonds shall be included in the Bid.

The bid security of Bidders under consideration will be returned immediately after execution of the Contract by the Owner. The amount of the bid security shall be forfeited to the Owner if the successful Bidder fails to enter into a contract and furnish required bonds and insurance certificates within ten (10) days after award of Contract.

Withdrawal of any Bid is prohibited for a period of sixty (60) days after the actual date of the opening thereof.

Each Bidder agrees to waive any claim it has or may have with the Owner, the Engineering/Technology Designer, Technology Consultant, and their respective employees, arising out of or in connection with the administration, evaluation, or recommendation of any bid.

The Owner reserves the right to reject any or all Bids, either in whole or in part, to reject a Bid not accompanied by the required bid security or by other data required by the Bidding Documents or to reject a Bid which is any way incomplete or irregular and to waive informality and irregularity in the bids and in the bidding.

The Owner reserves the right to accept Alternates in any order or combination and to determine the low Bidder on the basis of the sum of the base bid and the Alternates accepted.

**END OF ADVERTISEMENT FOR BIDS**

## **SECTION 00200 - INSTRUCTIONS TO BIDDERS**

### **1. DEFINITIONS**

- A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bids, Instruction to Bidders, the Bid Form and other bidding and contract forms. The proposed Contract Documents consist of the form of an Agreement between Owner and Contractor, General and Supplementary Conditions of the Contract, Specifications, Drawings and Addenda issued prior to execution of the Contract.
- B. Addenda are written or graphic instruments issued by the Engineer/Technology Designer prior to the execution of the Contract, which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections.
- C. A Bidder is a person or entity who submits a Bid.
- D. A Bid is a complete and properly signed proposal to do the work for the sums stipulated therein submitted in accordance with the Bidding Documents.
- E. The Base Bid is the amount stated in the Bid for which the Bidder offers to perform the work as described in the Bidding Documents as the base, to which work may be added to or deleted from, for the amounts stated in the Alternates.
- F. An Alternate is an amount stated in the Bid Form to be added to or deducted from the amount of the Base Bid if the described Alternate is accepted.
- G. A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services or a portion of the work as described in the Bidding Documents.

### **2. SECURING BIDDING DOCUMENTS**

- A. Bidding is by public advertisement and invitation. Copies of the Bidding Documents may be obtained from Integrated Design Solutions, LLC, upon conditions set forth in the Advertisement for Bids.
- B. Only complete sets of Bidding Documents will be furnished. The Owner or Engineer/Technology Designer assumes no responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.
- C. All copies of the Bidding Documents received for bidding purposes shall be returned in usable condition within ten (10) days of receipt of bids. Incomplete bidding documents or bidding documents returned later than ten (10) days after receipt of bids will result in a forfeiture of the Bidder's deposit.
- D. Bidding Documents remain the property of the Engineer/Technology Designer.

### **3. PREPARATION AND SUBMISSION OF BIDS**

- A. Bids shall be submitted on forms bound in the Project Manual of the Bidding Documents.
- B. All blanks on the Bid Form must be filled in by typewriter or by hand in ink.

- C. Amounts shall be expressed in both words and figures. In case of a discrepancy the amount stated in words shall govern.
- D. Alterations by erasure or interlineations must be initialed by the Bidder.
- E. All Alternates must be bid. If no change in the Base Bid is required, enter "No Change."
- F. Submit the Bid, along with the bid security and any other documents required to be submitted with the Bid, to the Owner, and deliver to the address given in the Advertisement for Bids on or before the day and hour set for receipt of the Bids.
  - 1. Enclose each Bid in a sealed opaque envelope bearing the title of the work INTERNATIONAL ACADEMY EAST, TECHNOLOGY RENOVATIONS, TSD Bid No. 9492, the name of the Bidder, and the date and hour of the Bid opening, with the notation "SEALED BID ENCLOSED".
  - 2. Do not change the wording of the Bid Form, and do not add words to, or delete words from the Bid Form.
  - 3. Unauthorized conditions, limitations, or provisions attached to the Bid will be cause for rejection of the Bid.
  - 4. Submit only duplicate signed copies of the Bid. Clearly distinguish the original bid from the duplicated copies of the bid.
  - 5. It is the sole responsibility of the Bidder to see that his bid is received on time.
  - 6. Telephonic, telegraphic, facsimile (fax), or e-mail Bids or telephonic, telegraphic, facsimile (fax) or e-mail modification of a Bid will not be considered.
  - 7. Bids received after the time fixed for receiving them will not be considered and will be returned to the Bidder unopened.
  - 8. Properly identified Bids received on time will be publicly opened and read aloud. A bid tabulation summary will be available.
  - 9. The "AFFIDAVIT OF BIDDER" found in the bid form must be completed.
- G. The Bidder in submitting a Bid represents that:
  - 1. The Bidder has read and understands the Bidding Documents, including the Drawings, Specifications and other proposed Contract Documents.
  - 2. The Bid is made in compliance with the Bidding Documents.
  - 3. The Bidder has visited the site of the Work and become informed as to existing conditions and limitations under which the Work is to be performed and included in their Bid a sum to cover the cost necessary to perform the Work as set forth in the Bidding Documents. No allowance will be made to a Bidder because of a lack of such examination or knowledge.
  - 4. The Bid is based upon materials, equipment and systems required by the Bidding Documents without exception and without substitutions.

#### **4. FAMILIAL DISCLOSURE STATEMENT**

- A. Each Bid shall be accompanied by the Familial Disclosure Statement in compliance with MCL.380.1267. The Bid proposal must be accompanied by a sworn and notarized statement disclosing Familial Relationship that exists between the Bidder or any employee of the Bidder and any member of the Board of Education of the School District, or the Superintendent of the School District. The School District will not consider a Bid Proposal that does not include this sworn and notarized Disclosure Statement.

**5. BID SECURITY AND BONDS**

- A. Each bid shall be accompanied by a certified check, cashier's check, money order or bid bond made payable to Troy School District in an amount not less than five percent (5%) of the Base Bid as a proposal guarantee. Bid Bond shall be provided by a company licensed to do business in the State of Michigan.
- B. The successful Bidder shall provide a Performance Bond and a Labor and Material Payment Bond, covering the faithful performance of the Contract and payment of all obligations arising there under, each in the amount of one hundred percent (100%) of the contract amount. Bonds shall be provided by a company licensed to do business in the State of Michigan. The cost of such bonds shall be included in the Bid.
- C. The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this paragraph.
- D. Should the Bidder refuse to enter into a Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- E. The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either the Contract has been executed and bonds have been furnished or the specified time has elapsed so that the Bid may be withdrawn or all Bids have been rejected.

**6. MODIFICATIONS AND WITHDRAWAL OF BIDS**

- A. A Bidder may not modify, withdraw or cancel a Bid, for a period of sixty (60) days following the time and date designated for receipt of Bids, and by submitting a Bid each Bidder shall so agree.
- B. A Bidder may withdraw their Bid, either personally or by written request, at any time prior to the scheduled time for receipt of bids. A withdrawn Bid may be resubmitted up to the date and time designated for receipt of Bids.
- C. Prior to the time and date for receipt of Bids, a Bidder may modify a Bid by notice to the party receiving Bids, at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder. Written notice and the signature of the Bidder shall be received, and date and time stamped by the receiving party on or before the date and time set for receipt of Bids. A change shall be worded as not to reveal the amount of the original Bid.

**7. CONSIDERATION OF BIDS**

- A. The Owner reserves the right to reject any or all Bids submitted either in whole or part, to reject a bid not accompanied by the required Bid security or by other data required by the Bidding Documents or to reject a Bid which is any way incomplete or irregular and to waive informality and irregularity in the Bids and in the Bidding.
- B. The Owner reserves the right to accept alternates in any order or combination and to determine the low Bidder on the basis of the sum of the Base Bid and the alternates accepted and to make the awards that the Owner determines are in its best interest. The decision of the Owner is final and not subject to appeal.



- C. The Owner reserves the right to negotiate with any Bidder without rebidding the project in whole or in part.

**8. EXECUTION OF AGREEMENT**

- A. The successful Bidder will be required to execute AIA Abbreviated Standard Form of Agreement between Owner and Contractor, AIA Document A107-1997 in conjunction with the Supplementary Conditions and additional conditions as defined within Specification Section 00800. The contract documents will be available for review and signatures within seven (7) days of contract award. The owner will issue an owner's Purchase Order for the owner's accounting purposes only.
- B. The Bidder to whom the Contract is awarded shall, within five (5) calendar days after notice of award and receipt of Agreement forms from the Owner, sign and deliver required copies to the Owner.
- C. At or prior to delivery of the signed Agreement, the Bidder to whom the Contract is awarded shall deliver to the Owner those Certificates of Insurance required by the Owner.
- D. The Owner shall approve Bonds and Certificates of Insurance and any required state or local permits before the successful Bidder may proceed with the Work. Failure or refusal to provide Bonds or Certificates of Insurance or required permits in a form satisfactory to the Owner shall subject the successful Bidder to loss of time from the allowable construction period equal to the time of delay in furnishing the required material.
- E. After award of the Contract and prior to the first payment request, the Bidder to whom the Contract is awarded shall deliver to the Owner a schedule of values on a building by building basis.

**9. INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING**

- A. Bidders shall study and compare the Bidding Documents with each other, shall examine the site and local conditions by appointment with Owner and if in doubt as to the true meaning of any part of the Bidding Documents, or finds discrepancies, inconsistencies, ambiguities or errors in or omissions from any part of the Bidding Documents, the Bidder may submit to the Engineer/Technology Designer a written request for interpretation thereof. The person submitting the request shall be responsible for its prompt delivery.

Bids Documents Available:	February 12, 2008
Pre-bid Conference and Site Visit:	February 21, 2008, 9:00 am
Deadline for RFI Submissions:	February 26, 2008, 12:00 pm
Deadline for RFI Responses and Addenda:	February 29, 2008, 4:00 pm
Bids Due:	March 4, 2008, 3:00 pm
Bid Opening:	March 4, 2008, 3:01 pm
Post Bid Interviews:	March 17, 18 and 19, 2008
Bid Award:	April 8, 2008 Board of Education Meeting

- B. Interpretation, correction or changes to the proposed Contract Documents will be made only by Addendum. Explanations, interpretations, corrections or changes of the Bidding Documents by any other method will not be binding.

**10. ADDENDA/RESPONSES TO RFI'S**

- A. Addenda and responses to RFI's will be posted on the TSD website and plan houses listed on the Advertisement for Bids.
- B. Copies of Addenda will be made available for inspection wherever Bidding Documents are on file.
- C. Addenda will be issued no later than four (4) days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which postpones the date for receipt of Bids.
- D. Each Bidder shall ascertain prior to submitting his bid that he has received all Addenda issued and shall acknowledge their receipt on the Bid Form.
- E. Each Bidder shall be responsible for compliance with all issued Addenda.

**11. UNIT PRICES**

- A. Each bidder must bid on all unit prices listed in the bid proposal that are applicable to his/her bid category. They will be fully considered in awarding the contract.
- B. Bids are considered irregular and may be rejected if unit prices contained in the bid proposal are obviously unbalanced either in excess of, or below, reasonable cost analysis values.
- C. Any unit price which, in the sole opinion of the Owner, is unbalanced or excessive, may be rejected without affecting the validity of the bid or other unit prices. An entire bid may be rejected if, in the sole opinion of the Owner, rejection of the individual unit prices materially affects the bid.
- D. Unit prices shall be firm through substantial completion as defined in the bid specifications.
- E. Unit prices shall be applicable to the additions to or deletions from the scope of work indicated in the specifications and may be utilized at any time prior to substantial completion.
- F. Unit prices for deletions from the scope of work may be utilized at any time prior to installation of said unit through substantial completion.

**12. SUBSTITUTIONS**

- A. No substitutions will be considered prior to receipt of Bids, unless a written request for approval has been received by the Engineer/Technology Designer at least ten (10) days prior to the date for receipt of Bids. Such request for substitutions shall include the name of the material or equipment for which it is to be substituted and a complete description of the proposed substitution including drawings, performance and test data, samples and other information necessary for an evaluation. A statement setting forth changes in other materials, equipment or other portions of the Work shall be included. The burden of proof of the merit of the proposed substitution is upon the proposer. The Engineer/Technology Designer's decision of approval or disapproval of a proposed substitution shall be final.

- B. If the Engineer/Technology Designer approves a proposed substitution prior to receipt of Bids, such approval will be set forth in an Addendum.
- C. No substitutions will be considered after Contract award unless specifically provided for in the Contract Documents.

**13. TAXES**

- A. For the purposes of this bid, the Troy School District is tax exempt. Do not include Federal, State or local taxes in the Bid. The Owner's federal and state tax exempt number is B38.600.3099. Usage taxes shall be included in the base bid price.

**14. PERMITS AND FEES**

- A. All Bids shall include costs of all applicable permits and fees.

**15. TIME OF COMPLETION**

- A. The Bidder, if awarded the Contract, agrees to complete the Work on or before the Contract Completion Date stated in the Bid Form.

**16. EQUAL OPPORTUNITY**

- A. The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take steps to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.
- B. The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf; state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

**17. PREVAILING WAGE LAW**

- A. Prevailing wage rates apply to this project.
- B. The wages and fringe benefits to be paid to each class of worker shall not be less than the wage and fringe benefit rates prevailing in the locality in which the work is to be performed, in accordance with Act 166 of the State of Michigan Public Acts of 1965 as amended.

**18. POST BID INFORMATION**

- A. Bidders to whom Contract award is under consideration shall submit to the Engineer/Technology Designer, upon request, a properly executed AIA Document A305, Contractor's Qualification Statement.

**END OF SECTION 00200**



STATE OF MICHIGAN

JENNIFER M. GRANHOLM  
GOVERNOR

DEPARTMENT OF LABOR & ECONOMIC GROWTH  
LANSING

KEITH W. COOLEY  
DIRECTOR

## REQUIREMENTS OF THE PREVAILING WAGES ON STATE PROJECTS ACT, PUBLIC ACT 166 OF 1965

The Michigan Department of Labor & Economic Growth determines prevailing rates pursuant to the Prevailing Wages on State Projects Act, Public Act 166 of 1965, as amended. The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to 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. Prevailing wage is satisfied when wages plus fringe benefits paid to a worker are equal to or greater than the required rate.

### 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 & Hour Division. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with Section 5 of Act 166, the investigation will be concluded and a referral to the Office of Prosecuting Attorney for criminal action under Section 7 and/or the Office of Attorney General for civil action will be made. The Office of Attorney General will pursue costs and fees associated with a lawsuit if filing is necessary to obtain records.

A violation of Act 166 may result in the contractor's name being added to the Prevailing Wage Act Violators List published on the division's website, updated monthly. This list includes the names and addresses of contractors and subcontractors the division has found in violation of Act 166 based on complaints from individuals and third parties. The Prevailing Wage Act Violators List is intended to inform contracting agents of contractors that have violated Act 166 for use in determining who should receive state-funded projects.

WAGE & HOUR DIVISION

P.O. BOX 30476 • LANSING, MICHIGAN 48909-7976

www.michigan.gov/wagehour • (517) 335-0400 • FAX (517) 335-0077

# ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS	
	<p><b>CLASS I</b> Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.</p> <p><b>CLASS II</b> Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.</p> <p><b>CLASS III</b> Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).</p> <p><b>CLASS IV</b> Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.</p>

HAZARDOUS WASTE ABATEMENT ENGINEERS	
	<p><b>CLASS I</b> Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slop Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.</p> <p><b>CLASS II</b> Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, and Welding Machine.</p> <p>Regular Crane Operators rate shall include: Mechanics, Crane Operators, Dragline Operators, Boom Truck Operators, Power Shovel Operators and Concrete Pumps with booms.</p> <p style="text-align: right;">Revised: 09/07/06</p>



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.

XXXHHHHHDY - 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.



Michigan Department of Labor & Economic Growth  
 Wage & Hour Division  
 PO Box 30476  
 Lansing , MI 48909-7976  
 517.335.0400  
 www.michigan.gov/wagehour



JENNIFER M. GRANHOLM  
 GOVERNOR

KEITH W. COOLEY  
 DIRECTOR

**Informational Sheet: Prevailing Wages on State Projects  
 General Information Regarding Fringe Benefits**

**Certain** fringe benefits may be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic, is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week).

The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X \$14.00 per hour = \$560/2080 =	\$ .27
Dental insurance	\$31.07 monthly premium X 12 mos. = \$372.84 /2080 =	\$ .18
Vision insurance	\$5.38 monthly premium X 12 mos. = \$64.56/2080 =	\$ .03
Health insurance	\$230.00 monthly premium X 12 mos. = \$2,760.00/2080 =	\$1.33
Life insurance	\$27.04 monthly premium X 12 mos. = \$324.48/2080 =	\$ .16
Tuition	\$500.00 annual cost/2080 =	\$ .24
Bonus	4 quarterly bonus/year x \$250 = \$1000.00/2080 =	\$ .48
401k Employer Contribution	\$2000.00 total annual contribution/2080 =	\$ .96
<b>Total Hourly Credit</b>		<b>\$3.65</b>

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans

**Official Request** 15  
**Requestor:** TROY SCHOOL DISTRICT

**Project Description:** TECHNOLOGY RENOVATIONS  
**Project Number:** INTERNATIONAL ACADEMY EAST

**Oakland County**  
**Official 2008 Prevailing Wage Rates for State Funded Projects**

**Issue Date:** 1/4/2008

**Contract must be awarded by** 4/3/2008

**Page 1 of 20**

<u>Classification</u>			Straight	Time and	Double	
Name	Description		Hourly	a Half	Time	Overtime Provision
<b>Asbestos &amp; Lead Abatement Laborer</b>						
Asbestos & Lead Abatement Laborer	MLDC		\$32.65	\$43.39	\$54.13	H H H X X X D Y
<b>Asbestos &amp; Lead Abatement, Hazardous Material Handler</b>						
Asbestos and Lead Abatement, Hazardous Material Handler	AS207		\$32.65	\$44.75	\$56.85	H H H X X X D Y
<b>Boilermaker</b>						
Boilermaker	BO169		\$51.27	\$76.00	\$100.74	H H H H H H D Y
	<b>Apprentice Rates:</b>					
	1st 6 months		\$38.12	\$56.28	\$74.44	
	2nd 6 months		\$39.17	\$57.86	\$76.54	
	3rd 6 months		\$40.23	\$59.45	\$78.66	
	4th 6 months		\$41.29	\$61.04	\$80.78	
	5th 6 months		\$42.33	\$62.60	\$82.86	
	6th 6 months		\$44.44	\$65.76	\$87.08	
	7th 6 months		\$46.54	\$68.91	\$91.28	
	8th 6 months		\$48.65	\$72.08	\$95.50	
<b>Bricklayer</b>						
Bricklayer, stone mason, pointer, cleaner, caulker	BR1		\$48.96	\$73.44	\$97.92	H H D H D D D N
	<b>Apprentice Rates:</b>					
	First 6 months		\$29.49	\$44.24	\$58.98	
	2nd 6 months		\$31.31	\$46.97	\$62.62	
	3rd 6 months		\$33.13	\$49.70	\$66.26	
	4th 6 months		\$34.95	\$52.43	\$69.90	
	5th 6 months		\$36.77	\$55.16	\$73.54	
	6th 6 months		\$38.59	\$57.89	\$77.18	
	7th 6 months		\$40.41	\$60.62	\$80.82	
	8th 6 months		\$42.23	\$63.35	\$84.46	

**Official Request #:** 15  
**Requestor:** TROY SCHOOL DISTRICT  
**Project Description:** TECHNOLOGY RENOVATIONS  
**Project Number:** INTERNATIONAL ACADEMY EAST  
**County:** Oakland

**Official Rate Schedule**

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



# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 2 of 20

Classification Name      Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Carpenter</b>					
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
<b>Apprentice Rates:</b>					
	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	
<b>Carpenter, piledriver</b>					
	CA687Z1	\$44.37	\$62.97	\$81.56	H H D H D D D D Y
<b>Apprentice Rates:</b>					
	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	
<b>Cement Mason</b>					
Cement Mason	CE514	\$43.95	\$61.87	\$79.78	H H D H H H H D N
<b>Apprentice Rates:</b>					
	1st 6 months	\$25.64	\$34.60	\$43.56	
	2nd 6 months	\$27.45	\$37.31	\$47.18	
	3rd 6 months	\$31.02	\$42.68	\$54.32	
	4th 6 months	\$34.61	\$48.05	\$61.50	
	5th 6 months	\$36.40	\$50.74	\$65.08	
	6th 6 months	\$39.99	\$56.13	\$72.26	
<b>Drywall</b>					
Drywall Taper	PT-22-D	\$38.45	\$50.90	\$63.35	H H D H D D D D N
<b>Apprentice Rates:</b>					
	First 3 months	\$26.00	\$32.23	\$38.45	
	Second 3 months	\$28.49	\$35.96	\$43.43	
	Second 6 months	\$30.98	\$39.69	\$48.41	
	Third 6 months	\$33.47	\$43.43	\$53.39	
	4th 6 months	\$34.71	\$45.29	\$55.87	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 3 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Electrician</b>					
Road Way Electrical Work	EC-17	\$45.37	\$65.63	\$85.90	H H H H H H H D Y
Double time due after 16 hours on any calendar day and all hours Sunday.					
<b>Apprentice Rates:</b>					
	1st 6 months	\$29.17	\$41.34	\$53.50	
	2nd 6 months	\$31.19	\$44.36	\$57.54	
	3rd 6 months	\$33.21	\$47.40	\$61.58	
	4th 6 months	\$35.23	\$50.43	\$65.62	
	5th 6 months	\$37.25	\$53.46	\$69.66	
	6th 6 months	\$41.32	\$59.57	\$77.80	
<u>Subdivision of county</u>	Holly not included				
Inside Wireman	EC-58-IW	\$46.88	\$64.00	\$81.13	H H H H H H H D N
<b>Apprentice Rates:</b>					
	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	
Sound and Communication Installer/Technician	EC-58-SC	\$29.33	\$41.30	\$53.26	H H H H H H H D N
<b>Apprentice Rates:</b>					
	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	
<b>Elevator Constructor</b>					
Elevator Constructor	EL 36	\$56.46		\$94.99	D D D D D D D D Y
Elevator Constructor					
<b>Apprentice Rates:</b>					
	1st Year Apprentice	\$37.74		\$58.93	
	2nd Year Apprentice	\$41.90		\$66.94	
	3rd Year Apprentice	\$43.98		\$70.95	
	4th Year Apprentice	\$48.14		\$78.96	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 4 of 20

Classification Name Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Glazier</b>				
Glazier	GL-357	\$41.56	\$55.41	H H H H H H H Y
<b>Apprentice Rates:</b>				
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	
<b>Heat and Frost Insulator</b>				
Spray Insulation	AS25S	\$20.14	\$29.14	H H H H H H H N
<b>Heat and Frost Insulator and Asbestos Worker</b>				
Heat and Frost Insulators and Asbestos Workers	AS25	\$48.20	\$62.86	\$77.52 H H H H H H H D Y
<b>Apprentice Rates:</b>				
1st Year		\$29.59	\$37.66	\$45.72
2nd Year		\$37.60	\$47.13	\$56.66
3rd Year		\$39.40	\$49.66	\$59.92
4th Year		\$42.34	\$54.07	\$65.80
<b>Ironworker</b>				
Fence Erecting	IR-25-F	\$41.03	\$61.26	\$81.49 H H D H H H D D Y
Glazing	IR-25-GZ1	\$48.48	\$72.64	\$96.65 H H D H H H D D Y
Mesh Iron Work	IR-25-MR	\$42.25	\$60.43	\$78.60 H H D H D D D D N
Pre-engineered Metal Work	IR-25-PE-Z1-Z2	\$40.94	\$51.62	\$62.29 H H H X X X X D Y
<b>Apprentice Rates:</b>				
1st level		\$23.36	\$28.54	\$33.72
2nd level		\$24.63	\$30.32	\$36.02
3rd level		\$25.92	\$32.13	\$38.35
4th level		\$27.19	\$33.92	\$40.65
5th level		\$28.47	\$35.72	\$42.97
6th level		\$29.75	\$37.52	\$45.28
Reinforced Iron Work	IR-25-RF	\$48.78	\$72.95	\$97.11 H H D H D D D D N
Rigging Work	IR-25-RIG	\$53.98	\$80.75	\$107.52 H H H H H H H D N

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 5 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Decking	IR-25-SD	\$46.40	\$69.32	\$92.23	H H D H H H D D Y
Structural, ornamental, conveyor, welder and pre-cast Apprentice rates apply to structural, conveyor, fence, glazing, reinforced, rigging, & siding decking	IR-25-STR	\$54.11	\$80.88	\$107.65	H H D H H H D D Y
<b>Apprentice Rates:</b>					
	Level 1	\$27.34	\$40.73	\$54.11	
	Level 2	\$30.02	\$44.74	\$59.47	
	Level 3	\$32.70	\$48.77	\$64.83	
	Level 4	\$35.37	\$52.77	\$70.17	
	Level 5	\$38.05	\$56.80	\$75.53	
	Level 6	\$40.73	\$60.81	\$80.89	
	Level 7	\$43.39	\$64.80	\$86.21	
	Level 8	\$46.08	\$68.83	\$91.59	
Industrial Door erection & construction	IR-25-STR-D	\$34.69	\$46.09	\$57.48	H H D H H H D D Y
<b>Laborer</b>					
Construction Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Demolition Laborer	L1076-A-A	\$37.62	\$53.35	\$69.07	H H D H D D D D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$31.98	\$44.89	\$57.79	
	1,001-2,000 work hours	\$33.11	\$46.58	\$60.05	
	2,001-3,000 work hours	\$34.24	\$48.28	\$62.31	
	3,001-4,000 work hours	\$36.49	\$51.66	\$66.81	
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	\$37.88	\$53.74	\$69.59	H H D H D D D D Y
Lansing Burner, Blaster & Powder Man	L1076-A-C	\$38.37	\$54.47	\$70.57	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	\$38.12	\$54.10	\$70.07	H H D H D D D D Y
Cleaner/ sweeper laborer, furniture laborer	L1076-A-E	\$32.17	\$45.17	\$58.17	H H D H D D D D Y
Demolition Laborer	L1076-D	\$37.62	\$53.35	\$69.07	H H D H D D D D Y

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 6 of 20

<u>Classification</u>		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Plasterer Tender, Plastering Machine Operator	LPT-1	\$39.00	\$55.42	\$71.83	H H D H D D D D N
<b>Apprentice Rates:</b>					
	0 - 1,000 hours	\$31.99	\$44.90	\$57.81	
	1,001 - 2,000 hours	\$33.11	\$46.58	\$60.05	
	2,001 - 3,000 hours	\$34.24	\$48.28	\$62.31	
	3,001 - 4,000 hours	\$36.49	\$51.66	\$66.81	
<b>Laborer - Hazardous</b>					
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	\$37.62	\$53.35	\$69.07	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$31.98	\$44.89	\$57.79	
	1,001-2,000 work hours	\$33.11	\$46.58	\$60.05	
	2,001-3,000 work hours	\$34.24	\$48.28	\$62.31	
	3,001-4,000 work hours	\$36.49	\$51.66	\$66.81	
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	\$38.62	\$54.85	\$71.07	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$32.74	\$46.03	\$59.31	
	1,001-2,000 work hours	\$33.91	\$47.78	\$61.65	
	2,001-3,000 work hours	\$35.09	\$49.56	\$64.01	
	3,001-4,000 work hours	\$37.44	\$53.08	\$68.71	
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>					
Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	LAUCT-Z1-1	\$33.54	\$44.30	\$55.05	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.70	\$37.04	\$45.37	
	1,001-2,000 work hours	\$29.67	\$38.49	\$47.31	
	2,001-3,000 work hours	\$30.64	\$39.95	\$49.25	
	3,001-4,000 work hours	\$32.57	\$42.85	\$53.11	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 7 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.	LAUCT-Z1-2	\$33.65	\$44.46	\$55.27	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.79	\$37.17	\$45.55	
	1,001-2,000 work hours	\$29.76	\$38.74	\$47.71	
	2,001-3,000 work hours	\$30.73	\$40.09	\$49.43	
	3,001-4,000 work hours	\$32.68	\$43.01	\$53.33	
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	\$33.71	\$44.55	\$55.39	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.83	\$37.23	\$45.63	
	1,001-2,000 work hours	\$29.81	\$38.71	\$47.59	
	2,001-3,000 work hours	\$30.78	\$40.16	\$49.53	
	3,001-4,000 work hours	\$32.73	\$43.09	\$53.43	
Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.	LAUCT-Z1-4	\$33.89	\$44.82	\$55.75	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.97	\$37.45	\$45.91	
	1,001-2,000 work hours	\$29.95	\$38.91	\$47.87	
	2,001-3,000 work hours	\$30.94	\$40.40	\$49.85	
	3,001-4,000 work hours	\$32.91	\$43.35	\$53.79	
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	\$34.14	\$45.20	\$56.25	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$29.16	\$37.73	\$46.29	
	1,001-2,000 work hours	\$30.15	\$39.21	\$48.27	
	2,001-3,000 work hours	\$31.15	\$40.71	\$50.27	
	3,001-4,000 work hours	\$33.14	\$43.70	\$54.25	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 8 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class VI - Dynamite man and powder man.	LAUCT-Z1-6	\$34.47	\$45.69	\$56.91	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$29.40	\$38.09	\$46.77	
	1,001-2,000 work hours	\$30.42	\$39.62	\$48.81	
	2,001-3,000 work hours	\$31.43	\$41.13	\$50.83	
	3,001-4,000 work hours	\$33.46	\$44.18	\$54.89	
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	\$27.75	\$35.61	\$43.47	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$24.36	\$30.53	\$36.69	
	1,001-2,000 work hours	\$25.04	\$31.55	\$38.05	
	2,001-3,000 work hours	\$25.72	\$32.57	\$39.41	
	3,001-4,000 work hours	\$27.07	\$34.59	\$42.11	
<b>Landscape Laborer</b>					
Landscape Specialist includes air, gas, and diesel equipment operator, lawn sprinkler installer on landscaping work where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintenance of landscape	LLAN-Z1-A	\$24.38	\$33.81	\$43.24	X X H X X X H D Y
All work pertaining to landscaping where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintaining of landscape projects occurs which may include small power tool operator, lawn sprinkler installer helper, material mover, & truck driver.	LLAN-Z1-B	\$20.16	\$27.48	\$34.80	X X H X X X H D Y
<b>Marble Finisher</b>					
Marble Finisher	TT32-MF	\$39.57	\$49.90	\$60.23	H H D H D D D D N
<b>Apprentice Rates:</b>					
	Level 1	\$19.30	\$24.91	\$30.52	
	Level 2	\$20.40	\$26.56	\$32.72	
	Level 3	\$24.67	\$31.27	\$37.87	
	Level 4	\$26.01	\$33.28	\$40.55	
	Level 5	\$27.38	\$34.86	\$42.34	
	Level 6	\$28.85	\$36.70	\$44.56	
	Level 7	\$30.39	\$38.30	\$46.21	
	Level 8	\$31.75	\$39.92	\$48.09	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 9 of 20

Classification Name Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Marble Mason</b>				
Marble Mason	TT32-MM	\$45.76	\$59.19	\$72.61 H H D H D D D D N
<b>Apprentice Rates:</b>				
	Level 1	\$24.86	\$31.89	\$38.93
	Level 2	\$27.65	\$35.43	\$43.21
	Level 3	\$30.50	\$38.57	\$46.64
	Level 4	\$33.00	\$41.96	\$50.92
	Level 5	\$35.10	\$44.33	\$53.56
	Level 6	\$38.52	\$49.39	\$60.27
	Level 7	\$39.37	\$50.53	\$61.69
	Level 8	\$40.22	\$51.81	\$63.39
<b>Operating Engineer</b>				
Crane with boom & jib or leads 120' or longer	EN-324-A120	\$49.26	\$65.97	\$82.68 H H D H D D D D Y
Crane with boom & jib or leads 140' or longer	EN-324-A140	\$50.08	\$67.20	\$84.32 H H D H D D D D Y
Crane with boom & jib or leads 220' or longer	EN-324-A220	\$50.38	\$67.65	\$84.92 H H D H D D D D Y
Crane with boom & jib or leads 300' or longer	EN-324-A300	\$51.88	\$69.90	\$87.92 H H D H D D D D Y
Crane with boom & jib or leads 400' or longer	EN-324-A400	\$53.38	\$72.15	\$90.92 H H D H D D D D Y
Compressor or welding machine	EN-324-CW	\$38.41	\$49.70	\$60.98 H H D H D D D D Y
Forklift, lull, extend-a-boom forklift	EN-324-FL	\$45.72	\$60.66	\$75.60 H H D H D D D D Y
Fireman or oiler	EN-324-FO	\$37.38	\$48.15	\$58.92 H H D H D D D D Y
Regular crane, job mechanic, concrete pump	EN-324-RC	\$48.40	\$64.68	\$80.96 H H D H D D D D Y
Regular engineer, hydro-excavator, remote controlled concrete breaker	EN-324-RE	\$47.43	\$63.23	\$79.02 H H D H D D D D Y
<b>Apprentice Rates:</b>				
	Period 1	\$37.85	\$48.90	\$59.96
	Period 2	\$39.43	\$51.28	\$63.12
	Period 3	\$41.02	\$53.66	\$66.30
	Period 4	\$42.59	\$56.01	\$69.44
	Period 5	\$44.17	\$58.39	\$72.60
	Period 6	\$45.76	\$60.77	\$75.78

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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



# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 10 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Operating Engineer - Marine Construction</b>					
Diver/Wet Tender, Engineer (hydraulic dredge)	GLF-1	\$49.29	\$64.74	\$80.19	X X H H H H H D Y
Holidays paid at \$95.64 per hour					
<u>Subdivision of county</u> all Great Lakes, islands therein, & connecting & tributary waters					
Crane/Backhoe Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender	GLF-2	\$47.79	\$62.49	\$77.19	X X H H H H H D Y
Holidays paid \$91.89 per hour					
<u>Subdivision of county</u> 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	\$44.59	\$57.69	\$70.79	X X H H H H H D Y
Holidays paid at \$83.89 per hour					
<u>Subdivision of county</u> 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	\$40.19	\$51.09	\$61.99	X X H H H H H D Y
Holidays paid at \$72.89 per hour					
<u>Subdivision of county</u> All Great Lakes, islands therein, & connecting & tributary waters					
<b>Operating Engineer Hazardous Waste Class I</b>					
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	\$46.22	\$61.89	\$77.55	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	1st 6 months	\$36.62	\$47.58	\$58.55	
	2nd 6 months	\$38.18	\$49.92	\$61.67	
	3rd 6 months	\$39.75	\$52.28	\$64.81	
	4th 6 months	\$41.31	\$54.62	\$67.93	
	5th 6 months	\$42.89	\$56.99	\$71.09	
	6th 6 months	\$44.45	\$59.33	\$74.21	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS

Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 11 of 20

Classification Name Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
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	\$45.27	\$60.46	\$75.65	H H H H H H H D Y
<b>Apprentice Rates:</b>				
1st 6 months	\$35.95	\$46.59	\$57.21	
2nd 6 months	\$37.48	\$48.88	\$60.27	
3rd 6 months	\$39.00	\$51.16	\$63.31	
4th 6 months	\$40.52	\$53.44	\$66.35	
5th 6 months	\$42.04	\$55.72	\$69.39	
6th 6 months	\$43.56	\$58.00	\$72.43	
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats. EN-324-HWCI-Z1D	\$43.97	\$58.51	\$73.05	H H H H H H H D Y
<b>Apprentice Rates:</b>				
1st 6 months	\$35.05	\$45.23	\$55.41	
2nd 6 months	\$36.51	\$47.43	\$58.33	
3rd 6 months	\$37.95	\$49.58	\$61.21	
4th 6 months	\$39.42	\$51.79	\$64.15	
5th 6 months	\$40.86	\$53.95	\$67.03	
6th 6 months	\$42.32	\$56.13	\$69.95	
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats. EN-324-HWCI-Z1DCL	\$43.72	\$58.14	\$72.55	H H H H H H H D Y
<b>Apprentice Rates:</b>				
1st 6 months	\$34.87	\$44.96	\$55.05	
2nd 6 months	\$36.31	\$47.12	\$57.93	
3rd 6 months	\$37.76	\$49.30	\$60.83	
4th 6 months	\$39.20	\$51.45	\$63.71	
5th 6 months	\$40.63	\$53.60	\$66.57	
6th 6 months	\$42.08	\$55.78	\$69.47	
<b>Operating Engineer Hazardous Waste Class II</b>				
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	\$41.99	\$55.54	\$69.09	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	\$41.04	\$54.12	\$67.19	H H H H H H H D Y

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 12 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1D	\$39.74	\$52.17	\$64.59	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	\$39.49	\$51.79	\$64.09	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Crane w/ Boom &amp; Jib leads 140' or longer</b>					
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	\$48.87	\$65.86	\$82.85	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	\$47.92	\$64.44	\$80.95	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	\$46.62	\$62.49	\$78.35	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	\$46.37	\$62.11	\$77.85	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Crane w/ Boom &amp; Jib leads 220' or longer</b>					
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	\$49.17	\$66.31	\$83.45	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	\$48.22	\$64.89	\$81.55	H H H H H H H D Y
Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW220-Z1D	\$46.92	\$62.94	\$78.95	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	\$46.67	\$62.56	\$78.45	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, and Concrete Pump with Boom Operator</b>					
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1D	\$44.94	\$59.97	\$74.99	H H H H H H H D Y

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 13 of 20

Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom</b>					
Level D	When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1DCL	\$44.07	\$58.66	\$73.25 H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with booms</b>					
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	\$46.24	\$61.92	\$77.59 H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operators and Concrete Pump with booms</b>					
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	\$47.19	\$63.34	\$79.49 H H H H H H D Y
<b>Operating Engineer Steel Work</b>					
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
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

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 14 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Crane Operator & Job Mechanic	EN-324-SWCO	\$51.15	\$69.26	\$87.36	H H D H H H D D Y
	<b>Apprentice Rates:</b>				
	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
<b>Operating Engineer Underground</b>					
Class I Equipment	EN-324A1-UC1	\$44.84	\$59.33	\$73.82	H H H H H H H D Y
	<b>Apprentice Rates:</b>				
	0-999 hours	\$36.05	\$46.20	\$56.34	
	1,000-1,999 hours	\$37.50	\$48.37	\$59.24	
	2,000-2,999 hours	\$38.94	\$50.53	\$62.12	
	3,000-3,999 hours	\$40.39	\$52.71	\$65.02	
	4,000-4,999 hours	\$41.84	\$54.88	\$67.92	
	5,000-5,999 hours	\$43.29	\$57.06	\$70.82	
Class II Equipment	EN-324A1-UC2	\$40.11	\$52.24	\$64.36	H H H H H H H D Y
Class III Equipment	EN-324A1-UC3	\$39.38	\$51.14	\$62.90	H H H H H H H D Y
Class IV Equipment	EN-324A1-UC4	\$38.81	\$50.29	\$61.76	H H H H H H H D Y
Master Mechanic	EN-324A1-UMM	\$45.09	\$59.71	\$74.32	H H H H H H H D Y

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 15 of 20

Classification	Name	Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Painter</b>						
	Painter	(8 hours of repaint work performed on Sunday shall be paid time & one half rate)	\$38.01	\$50.24	\$62.47	H H D H D D D D N
		<b>Apprentice Rates:</b>				
		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, overpasses, tanks or steel, OR spraywork & sandblasting done with a scaffold height of 40' above the floor level	\$38.81	\$51.44	\$64.07	H H D H D D D D N
		<b>Pipefitter</b>				
	Pipefitter		\$55.06	\$74.14	\$89.96	H H D H D D D D N
		<b>Apprentice Rates:</b>				
		1st & 2nd periods	\$26.28	\$34.63	\$41.63	
		3rd period	\$28.28	\$37.63	\$45.63	
		4th period	\$29.53	\$39.51	\$48.13	
		5th period	\$30.78	\$41.38	\$50.63	
		6th period	\$32.03	\$43.25	\$53.13	
		7th period	\$33.28	\$45.13	\$55.63	
		8th period	\$34.28	\$46.63	\$57.63	
		9th period	\$35.28	\$48.13	\$59.63	
		10th period	\$36.71	\$50.27	\$62.49	
		<b>Plasterer</b>				
	Plasterer		\$42.89	\$64.34	\$85.78	H H H H H H H D N
		<b>Apprentice Rates:</b>				
		1st 6 months	\$21.97	\$32.96	\$43.94	
		2nd 6 months	\$25.46	\$38.19	\$50.92	
		3rd 6 months	\$28.95	\$43.42	\$57.90	
		4th 6 months	\$32.43	\$48.65	\$64.86	
		5th 6 months	\$35.92	\$53.88	\$71.84	
		6th 6 months	\$39.40	\$59.10	\$78.80	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 16 of 20

Classification	Name	Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Plasterer</b>		PL67	\$42.87	\$58.16	\$73.45	H H H X D D D D N
		<b>Apprentice Rates:</b>				
		1st 6 months	\$24.52	\$30.63	\$36.75	
		2nd 6 months	\$27.58	\$35.23	\$42.87	
		3rd 6 months	\$30.64	\$39.81	\$48.99	
		4th 6 months	\$33.70	\$44.41	\$55.11	
		5th 6 months	\$36.75	\$48.98	\$61.21	
		6th 6 months	\$39.81	\$53.57	\$67.33	
<b>Plumber</b>		PL-98	\$53.68	\$71.45	\$87.21	H H D H D D D D Y
		<b>Apprentice Rates:</b>				
		Period 1	\$17.11	\$23.41	\$29.71	
		Period 2	\$17.11	\$23.41	\$29.71	
		Period 3	\$26.78	\$35.13	\$43.47	
		Period 4	\$27.41	\$36.07	\$44.73	
		Period 5	\$28.57	\$37.81	\$47.05	
		Period 6	\$29.72	\$39.53	\$49.35	
		Period 7	\$30.87	\$41.26	\$51.65	
		Period 8	\$32.04	\$43.01	\$53.99	
		Period 9	\$33.19	\$44.74	\$56.29	
		Period 10	\$34.35	\$46.48	\$58.61	
<b>Roofer</b>		RO-149-WOM	\$46.81	\$60.92	\$75.02	H H D H H H D D N
		Commercial Roofer Straight time is not to exceed ten (10) hours per day or forty (40) hours per week.				
		<b>Apprentice Rates:</b>				
		Apprentice 1	\$30.97	\$39.16	\$47.34	
		Apprentice 2	\$35.15	\$43.42	\$51.70	
		Apprentice 3	\$36.57	\$45.56	\$54.54	
		Apprentice 4	\$37.60	\$47.10	\$56.60	
		Apprentice 5	\$38.82	\$48.93	\$59.04	
		Apprentice 6	\$40.22	\$51.03	\$61.84	
<b>Sheet Metal Worker</b>		SHM-80	\$55.37	\$73.66	\$91.95	H H D H D D D D Y
		<b>Apprentice Rates:</b>				
		First Year	\$36.96	\$46.34	\$55.71	
		Second Year	\$38.37	\$48.45	\$58.53	
		Third Year	\$39.80	\$50.60	\$61.39	
		Fourth Year	\$42.65	\$54.87	\$67.09	
		Fifth Year	\$45.52	\$59.18	\$72.83	

Official Request #: 15

Requestor: TROY SCHOOL DISTRICT

Project Description: TECHNOLOGY RENOVATIONS

Project Number: INTERNATIONAL ACADEMY EAST

County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 17 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Siding & Decking	SHM-80-SD	\$37.10	\$49.16	\$61.22	H H H H H H D Y
<b>Sprinkler Fitter</b>					
Sprinkler Fitter	SP 704	\$55.92	\$75.26	\$94.60	H H D H D D D D Y
	<b>Apprentice Rates:</b>				
	1st Period	\$22.82	\$30.55	\$38.29	
	2nd Period	\$34.65	\$43.36	\$52.06	
	3rd Period	\$36.58	\$46.25	\$55.92	
	4th Period	\$38.51	\$49.14	\$59.78	
	5th Period	\$40.45	\$52.06	\$63.66	
	6th Period	\$42.38	\$54.95	\$67.52	
	7th Period	\$44.32	\$57.86	\$71.40	
	8th Period	\$46.25	\$60.76	\$75.26	
	9th Period	\$48.18	\$63.65	\$79.12	
	10th Period	\$50.12	\$66.56	\$83.00	
<b>Terrazzo</b>					
Terrazzo Finisher	TT32-TRF	\$39.97	\$50.50	\$61.03	H H D H D D D D N
	<b>Apprentice Rates:</b>				
	Level 1	\$20.29	\$26.40	\$32.50	
	Level 2	\$21.00	\$27.46	\$33.92	
	Level 3	\$24.60	\$31.17	\$37.73	
	Level 4	\$25.94	\$33.17	\$40.41	
	Level 5	\$27.31	\$34.76	\$42.20	
	Level 6	\$28.78	\$36.40	\$44.02	
	Level 7	\$30.32	\$38.32	\$46.32	
	Level 8	\$31.68	\$39.94	\$48.20	
Terrazzo Worker	TT32-TRW	\$45.29	\$58.48	\$71.67	H H D H D D D D N
	<b>Apprentice Rates:</b>				
	Level 1	\$24.76	\$31.75	\$38.73	
	Level 2	\$27.55	\$35.28	\$43.01	
	Level 3	\$30.40	\$38.42	\$46.44	
	Level 4	\$32.90	\$41.81	\$50.72	
	Level 5	\$35.00	\$44.31	\$53.61	
	Level 6	\$38.34	\$49.13	\$59.91	
	Level 7	\$39.44	\$50.63	\$61.83	
	Level 8	\$40.29	\$51.91	\$63.53	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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



# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 18 of 20

Classification	Name	Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Tile</b>						
	Tile Finisher	TT32-TF	\$39.59	\$49.93	\$60.27	H H D H D D D D N
		<b>Apprentice Rates:</b>				
		Level 1	\$19.20	\$24.76	\$30.32	
		Level 2	\$20.30	\$26.41	\$32.52	
		Level 3	\$24.57	\$31.12	\$37.67	
		Level 4	\$25.91	\$33.13	\$40.35	
		Level 5	\$27.28	\$34.71	\$42.14	
		Level 6	\$28.75	\$36.56	\$44.36	
		Level 7	\$30.29	\$38.15	\$46.01	
		Level 8	\$31.65	\$39.77	\$47.89	
	Tile Layer	TT32-TL	\$45.19	\$58.33	\$71.47	H H D H D D D D N
		<b>Apprentice Rates:</b>				
		Level 1	\$24.76	\$31.75	\$38.73	
		Level 2	\$27.55	\$35.28	\$43.01	
		Level 3	\$30.40	\$38.42	\$46.44	
		Level 4	\$32.90	\$41.81	\$50.72	
		Level 5	\$34.95	\$44.10	\$53.26	
		Level 6	\$38.29	\$49.05	\$59.81	
		Level 7	\$38.89	\$49.81	\$60.73	
		Level 8	\$39.74	\$51.09	\$62.43	
	<b>Truck Driver</b>					
	on all trucks of 8 cubic yard capacity or less	TM-RB1	\$34.76	\$36.44		H H H H H H H Y
	of all trucks of 8 cubic yard capacity or over	TM-RB1A	\$34.86	\$36.59		H H H H H H H Y
	on euclid type equipment	TM-RB1B	\$35.01	\$36.81		H H H H H H H Y
	<b>Underground Laborer Open Cut, Class I</b>					
	Construction Laborer	LAUC-Z1-1	\$33.39	\$44.07	\$54.75	H H H H H H H D Y
		<b>Apprentice Rates:</b>				
		0-1,000 work hours	\$28.59	\$36.87	\$45.15	
		1,001-2,000 work hours	\$29.55	\$38.31	\$47.07	
		2,001-3,000 work hours	\$30.51	\$39.75	\$48.99	
		3,001-4,000 work hours	\$32.43	\$42.63	\$52.83	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 19 of 20

Classification		Straight	Time and	Double	
Name	Description	Hourly	a Half	Time	Overtime Provision
<b>Underground Laborer Open Cut, Class II</b>					
	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	\$33.50	\$44.24	\$54.97 H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.68	\$37.01	\$45.33	
	1,001-2,000 work hours	\$29.64	\$38.45	\$47.25	
	2,001-3,000 work hours	\$30.60	\$39.89	\$49.17	
	3,001-4,000 work hours	\$32.54	\$42.80	\$53.05	
<b>Underground Laborer Open Cut, Class III</b>					
	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	\$33.55	\$44.31	\$55.07 H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.71	\$37.05	\$45.39	
	1,001-2,000 work hours	\$29.68	\$38.51	\$47.33	
	2,001-3,000 work hours	\$30.65	\$39.97	\$49.27	
	3,001-4,000 work hours	\$32.58	\$42.86	\$53.13	
<b>Underground Laborer Open Cut, Class IV</b>					
	Trench or excavating grade man.	LAUC-Z1-4	\$33.63	\$44.43	\$55.23 H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.77	\$37.15	\$45.51	
	1,001-2,000 work hours	\$29.74	\$38.60	\$47.45	
	2,001-3,000 work hours	\$30.72	\$40.07	\$49.41	
	3,001-4,000 work hours	\$32.66	\$42.98	\$53.29	
<b>Underground Laborer Open Cut, Class V</b>					
	Pipe Layer	LAUC-Z1-5	\$33.69	\$44.52	\$55.35 H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.82	\$37.22	\$45.61	
	1,001-2,000 work hours	\$29.79	\$38.67	\$47.55	
	2,001-3,000 work hours	\$30.77	\$40.15	\$49.51	
	3,001-4,000 work hours	\$32.72	\$43.07	\$53.41	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 1/4/2008

Contract must be awarded by 4/3/2008

Page 20 of 20

Classification	Name	Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Underground Laborer Open Cut, Class VI</b>						
		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 and the installation and repair of water service pipe and appurtenances.	\$31.14	\$40.70	\$50.25	H H H H H H H D Y
		<b>Apprentice Rates:</b>				
		0-1,000 work hours	\$26.90	\$34.34	\$41.77	
		1,001-2,000 work hours	\$27.75	\$35.61	\$43.47	
		2,001-3,000 work hours	\$28.60	\$36.89	\$45.17	
		3,001-4,000 work hours	\$30.29	\$39.43	\$48.55	
<b>Underground Laborer Open Cut, Class VII</b>						
		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.	\$27.76	\$35.63	\$43.49	H H H H H H H D Y
		<b>Apprentice Rates:</b>				
		0-1,000 work hours	\$24.37	\$30.55	\$36.71	
		1,001-2,000 work hours	\$25.05	\$31.57	\$38.07	
		2,001-3,000 work hours	\$25.73	\$32.59	\$39.43	
		3,001-4,000 work hours	\$27.08	\$34.61	\$42.13	

Official Request #: 15  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 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.**

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

**SECTION 00410 - BID FORM**

**OWNER:** Troy School District  
4400 Livernois  
Troy, Michigan 48098

**PROJECT:** Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

**ARCHITECT:** Integrated Design Solutions, LLC  
Architecture, Engineering, Interiors & Technology  
888 W. Big Beaver Road, Suite 200  
Troy, Michigan 48084  
(248) 823-2100  
(248) 823-2200 fax

**NAME OF BIDDER:** \_\_\_\_\_

**ADDRESS:** \_\_\_\_\_  
\_\_\_\_\_

**TELEPHONE:** \_\_\_\_\_

**BID**

Pursuant to and in compliance with your Advertisement for Bids Instructions to Bidders and other documents relating thereto, the undersigned proposes and agrees to furnish equipment, materials, and labor and perform all work necessary to complete the International Academy East, Technology Renovations for the TSD Bid No. 9492 Project in accordance with the Drawings and Specifications prepared by Integrated Design Solutions, LLC dated February 12, 2008, and agrees to accept payment as herein provided.

**BASE BID**

Lump sum bid for all work specified and shown on the Drawings as indicated for base bid.

\_\_\_\_\_  
\_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

**NOTE:**

The amount shall be shown in both words and figures. In case of a discrepancy, the amount shown in words shall govern.

**BASE BID BREAKDOWN**

The award of the Contract shall be based on the base bid amount. This Contractor shall provide separate prices for accounting purposes only.

Section 16740 – Wireless Network Equipment

Cost of materials, including OH & P \$ \_\_\_\_\_  
Cost of labor, including OH & P \$ \_\_\_\_\_  
Total cost of Section 16740 \$ \_\_\_\_\_

Section 16790 – Telephone and Data Communication Systems

Cost of materials, including OH & P \$ \_\_\_\_\_  
Cost of labor, including OH & P \$ \_\_\_\_\_  
Total cost for Section 16790 \$ \_\_\_\_\_

Section 16795 – Voice and Video Communication Systems

Cost of materials, including OH & P \$ \_\_\_\_\_  
Cost of labor, including OH & P \$ \_\_\_\_\_  
Total cost for Section 16795 \$ \_\_\_\_\_

Bid Bond Cost \$ \_\_\_\_\_  
Total Lump Sum Base Bid \$ \_\_\_\_\_

**MANDATORY ALTERNATES**

The foregoing Base Bid may be increased or decreased by the amounts herein quoted for Alternates. The following alternate prices shall include all charges for labor, material, and equipment, bonds, overhead and profit, general conditions, supervision, insurance, taxes, and incidental expenses.

**NONE**

**VOLUNTARY ALTERNATES**

Voluntary Alternate No. 1:

Add/Deduct \_\_\_\_\_  
 \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

Voluntary Alternate No. 2:

Add/Deduct \_\_\_\_\_  
 \_\_\_\_\_ Dollars (\$ \_\_\_\_\_).

**UNIT PRICES - WIRELESS NETWORK EQUIPMENT AND TELEPHONE AND DATA COMMUNICATION SYSTEMS - SECTIONS 16740 & 16790**

The Bidder proposes unit prices in accordance with the following schedule. Said unit prices shall include all charges for labor, materials and equipment, overhead and profit, general conditions, supervision, insurance, taxes and incidental expenses.

Said unit prices shall be applicable to the pricing of additions to, or deletions from, the work indicated in the Contract Documents.

	<b>ADD</b>	<b>DEDUCT</b>
UP-1D: Cost to provide and install a category 6 data outlet including labor, wire, jacks, terminations, connectors, testing and tagging.	\$ _____	\$ _____
UP-2D: Cost to provide and install a 48 port category 6 patch panel.	\$ _____	\$ _____
UP-3D: Cost to provide and install a 2 rack unit (RU) wire management guide.	\$ _____	\$ _____
UP-4D: Cost to provide and install a 10' category 6 patch cable.	\$ _____	\$ _____
UP-5D: Cost to provide and install a Cisco 3750G-24PS 24-port 10/100/1000MB PoE switch.	\$ _____	\$ _____
UP-6D: Cost to provide and install a Cisco 3560G-24PS 24-port 10/100/1000 MB PoE switch.	\$ _____	\$ _____
UP-7D: Cost to provide and install a Cisco 2960G-48TC 10/100/1000 MB switch.	\$ _____	\$ _____
UP-8D: Cost to provide, install and program a wireless access point including access point, mount, category 6 data cable, jacks, terminations, connectors, testing and tagging..	\$ _____	\$ _____
UP-9D: Cost to provide and install a wireless access point protective cage.	\$ _____	\$ _____
UP-10D: Cost to provide and install a TX SFP.	\$ _____	\$ _____
UP-11D: Labor cost per hour for cable abatement beyond the twenty-four (24) hour allotment included with Base Bid.	\$ _____	\$ _____

**UNIT PRICES – VOICE AND VIDEO COMMUNICATION SYSTEMS – SECTION 16795**

The Bidder proposes unit prices in accordance with the following schedule. Said unit prices shall include all charges for labor, materials and equipment, overhead and profit, general conditions, supervision, insurance, taxes and incidental expenses.

Said unit prices shall be applicable to the pricing of additions to, or deletions from, the work indicated in the Contract Documents.

	<b>ADD</b>	<b>DEDUCT</b>
UP-1V: Cost to disconnect and remove an existing (demolition) 32" TV, a 32" TV single arm mounting bracket, a set-top box, patch cables. Store off site at Owner's secured location. Include all labor and material and storage costs. Test TV and set-top box for operation prior to disconnecting. Any TV or set-top box found non-functioning after reinstallation will be the responsibility of this contractor to make operational. TV's and set-top boxes shall be tagged with the room number in which they were removed for installation in the same space.	\$ _____	\$ _____
UP-2V: Cost to install an existing 32" TV, provide and install a new 32" TV dual arm mounting bracket, install existing patch cables, and existing set top box complete. The TV, patch cables and set top box are the ones placed in storage, except the TV bracket, in Item UP No. 1. The TV's and set-top boxes are to be reinstalled in the same space that they were removed. The RF cables and data cables for the outlet box to the hardline and to the MDF, respectively, are not part of this unit price.	\$ _____	\$ _____
UP-3V: Cost to provide a new 32" TV of the same make and model as the existing. The labor, hardware and wiring are included in UP-2V and not required in this UP.	\$ _____	\$ _____
UP-4V: Cost to provide a new set top box to match existing. The labor, hardware and wiring are included in UP-2V and not required in this UP.	\$ _____	\$ _____
UP-5V: Cost to provide a new set of patch cables. The labor is included in UP-2V and not required in this UP.	\$ _____	\$ _____
UP-6V: Cost to provide new speaker, back box and grille in lieu of reusing existing stored speaker, back box and grille.	\$ _____	\$ _____
UP-7V: Cost to provide a new speaker grille in lieu of reusing existing stored speaker grille.	\$ _____	\$ _____
UP-8V: Cost to provide and install a single face, 5 2/4" LED display clock including clock, wiring and terminations complete.	\$ _____	\$ _____
UP-9V: Cost to provide and install a ceiling mounted, digital video projector including wiring from projector to instructor outlet, jacks, terminations and testing complete.	\$ _____	\$ _____
UP-10V: Cost to provide and install a new classroom control panel (CCP). Do not include the hardware, back box and wiring for this CCP as it is for replacement of a CCP found non-functional during installation phase.	\$ _____	\$ _____

**TAXES**

For the purposes of this bid, the Troy School District is tax exempt. Do not include Federal, State or local taxes in the Bid. The Owner's federal and state tax-exempt number is B38.600.3099. Usage taxes shall be included in the base bid price.

**BID SECURITY**

Accompanying this Bid is a certified check, cashier's check, money order or bid bond (cross out those not applicable) made payable to Troy School District in the amount of five percent (5%), of Base Bid, which shall be retained by the Owner as liquidated damages, if the undersigned fails to execute the contract within ten (10) days of award of the Contract.

**ADDENDA**

The undersigned acknowledges the receipt of the following addenda:

Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_  
 Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_  
 Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_ Addendum No. \_\_\_\_\_ Dated \_\_\_\_\_

**TIME OF COMPLETION**

The successful Bidder will be working closely with general trades awarded under a separate contract.

The undersigned agrees to substantially complete the Project by the following:

	<b>Scope of Work</b>	<b>Substantial Completion</b>
1.	16795 – Multimedia Central Processing Units (New computers) – Programming, testing, debugging complete	6/27/08
2.	16740, 16790 and 16795 – Installation of cabling and wireless access points and other above ceiling work	6/27/08
3.	16795 – Balance of work	7/25/08
4.	16740 and 16790 – Balance of work	7/25/08

**WITHDRAWAL OF BIDS**

The undersigned agrees that his Bid shall not be withdrawn for a period of sixty (60) days after the date set for receipt of Bids.

**NON-COLLUSION**

The undersigned certifies that the bid has not been prepared in collusion with any other bidder and that the prices, discounts, terms and conditions thereof have not been directly or indirectly communicated by or on behalf of the Bidder to any such person other than the recipient of such bid, and will not be communicated to any such person prior to the official opening of said bid. The undersigned fully understands that no premiums, rebates, or gratuities are permitted either with, prior to or after signing the Contract.

This certification may be treated as if it were a sworn statement made under oath, and is made subject to the provisions of 18 U. S. C., 1001, relating to the making of false statements.



Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

**SIGNATURE AND LEGAL STATUS OF BIDDER**

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
(Individual, Partnership, Corporation)

\_\_\_\_\_  
State of Incorporation

Affix Corporate Seal

By:

\_\_\_\_\_  
(Authorized Signature of Bidder)

\_\_\_\_\_  
(Print or Type Name of Bidder)

\_\_\_\_\_  
Title

\_\_\_\_\_  
Business Address

Instructions: Submit one (1) original and two (2) copies to the Owner and retain one (1) copy for the Bidder's records. Clearly label each copy submitted as either "original" or "copy".

**END OF BID FORM**

**SECTION 00450**

**FAMILIAL DISCLOSURE STATEMENT**

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 owner(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 \_\_\_\_\_, 2008, by \_\_\_\_\_.

\_\_\_\_\_

, Notary Public

\_\_\_\_\_ County, Michigan

My Commission Expires: \_\_\_\_\_

Acting in the County of: \_\_\_\_\_

**END OF SECTION**

# DRAFT AIA® Document A107™ - 1997

## Abbreviated Standard Form of Agreement Between Owner and Contractor for Construction Projects of Limited Scope where the basis of payment is a STIPULATED SUM

AGREEMENT made as of the [REDACTED] day of [REDACTED] in the year [REDACTED]  
(In words, indicate day, month and year)

BETWEEN the Owner:  
(Name, address and other information)

[REDACTED]

and the Contractor:  
(Name, address and other information)

[REDACTED]

the Project is:  
(Name and location)

00000-00000 Blank Forms

the Architect is:  
(Name, address and other information)

[REDACTED]

The Owner and Contractor agree as follows.

**ADDITIONS AND DELETIONS:**  
The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An Additions and Deletions Report that notes added information as well as revisions to the standard form text is available from the author and should be reviewed.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This Document includes abbreviated General Conditions and should not be used with other general conditions.

This document has been approved and endorsed by The Associated General Contractors of America.

**ELECTRONIC COPYING** of any portion of this AIA® Document to another electronic file is prohibited and constitutes a violation of copyright laws as set forth in the footer of this document.

**ARTICLE 1 THE WORK OF THIS CONTRACT**

The Contractor shall fully execute the Work described in the Contract Documents, except to the extent specifically indicated in the Contract Documents to be the responsibility of others.

**ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION**

§ 2.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.  
*(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)*

§ 2.2 The Contract Time shall be measured from the date of commencement.

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than [ ] days from the date of commencement, or as follows:  
*(Insert number of calendar days. Alternatively, a calendar date may be used when coordinated with the date of commencement. Unless stated elsewhere in the Contract Documents, insert any requirements for earlier Substantial Completion of certain portions of the Work.)*

, subject to adjustments of this Contract Time as provided in the Contract Documents  
*(Insert provisions, if any, for liquidated damages relating to failure to complete on time or for bonus payments for early completion of the Work.)*

**ARTICLE 3 CONTRACT SUM**

§ 3.1 The Owner shall pay the Contractor the Contract Sum in current funds for the Contractor's performance of the Contract. The Contract Sum shall be [ ] (\$ [ ]), subject to additions and deletions as provided in the Contract Documents.

§ 3.2 The Contract Sum is based upon the following alternates, if any, which are described in the Contract Documents and are hereby accepted by the Owner:  
*(State the numbers or other identification of accepted alternates. If decisions on other alternates are to be made by the Owner subsequent to the execution of this Agreement, attach a schedule of such other alternates showing the amount for each and the date when that amount expires.)*

§ 3.3 Unit prices, if any, are as follows:

Description	Units	Price (\$ 0.00)
[ ]	[ ]	[ ]

**ARTICLE 4 PAYMENTS**

**§ 4.1 PROGRESS PAYMENTS**

§ 4.1.1 Based upon Applications for Payment submitted to the Architect by the Contractor and Certificates for Payment issued by the Architect, the Owner shall make progress payments on account of the Contract Sum to the Contractor as provided below and elsewhere in the Contract Documents. The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

§ 4.1.2 Provided that an Application for Payment is received by the Architect not later than the [ ] day of a month, the Owner shall make payment to the Contractor not later than the [ ] day of the same month. If an Application for Payment is received by the Architect after the date fixed above, payment shall be made by the Owner not later than [ ] ( [ ] ) days after the Architect receives the Application for Payment.

§ 4.1.3 Payments due and unpaid under the Contract shall bear interest from the date payment is due at the rate stated below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon, if any.)

per annum

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Contractor's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)

## § 4.2 FINAL PAYMENT

§ 4.2.1 Final payment, constituting the entire unpaid balance of the Contract Sum, shall be made by the Owner to the Contractor when:

- .1 the Contractor has fully performed the Contract except for the Contractor's responsibility to correct Work as provided in Section 17.2, and to satisfy other requirements, if any, which extend beyond final payment; and
- .2 a final Certificate for Payment has been issued by the Architect.

§ 4.2.2 The Owner's final payment to the Contractor shall be made no later than 30 days after the issuance of the Architect's final Certificate for Payment, or as follow:

## ARTICLE 5 ENUMERATION OF CONTRACT DOCUMENTS

§ 5.1 The Contract Documents are listed in Article 6 and, except for Modifications issued after execution of this Agreement, are enumerated as follows:

§ 5.1.1 The Agreement is this executed 1997 edition of the Abbreviated Standard Form of Agreement Between Owner and Contractor, AIA Document A107-1997.

§ 5.1.2 The Supplementary and other Conditions of the Contract are those contained in the Project Manual dated [ ], and are as follows:

Document	Title	Pages
----------	-------	-------

§ 5.1.3 The Specifications are those contained in the Project Manual dated as in Section 5.1.2, and are as follows:  
(Either list the Specifications here or refer to an exhibit attached to this Agreement.)

Title of Specifications exhibit:

§ 5.1.4 The Drawings are as follows, and are dated [ ] unless a different date is shown below:  
(Either list the Drawings here or refer to an exhibit attached to this Agreement.)

Title of Drawings exhibit:

§ 5.1.5 The Addenda, if any, are as follows:

Number	Date	Pages
--------	------	-------

Portions of Addenda relating to bidding requirements are not part of the Contract Documents unless the bidding requirements are also enumerated in this Article 5.

§ 5.1.6 Other documents, if any, forming part of the Contract Documents are as follows:

*(List any additional documents which are intended to form part of the Contract Documents.)*

## GENERAL CONDITIONS

### ARTICLE 6 GENERAL PROVISIONS

#### § 6.1 THE CONTRACT DOCUMENTS

The Contract Documents consist of this Agreement with Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to the execution of this Agreement, other documents listed in this Agreement and Modifications issued after execution of this Agreement. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive or (4) a written order for a minor change in the Work issued by the Architect. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

#### § 6.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Owner and a Subcontractor or sub-subcontractor, (3) between the Owner and Architect or (4) between any persons or entities other than the Owner and Contractor.

#### § 6.3 THE WORK

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

#### § 6.4 EXECUTION OF THE CONTRACT

Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed and correlated personal observations with requirements of the Contract Documents.

#### § 6.5 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER INSTRUMENTS OF SERVICE

The Drawings, Specifications and other documents, including those in electronic form, prepared by the Architect and the Architect's consultants are Instruments of Service through which the Work to be executed by the Contractor is described. The Contractor may retain one record set. Neither the Contractor nor any Subcontractor, sub-subcontractor or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications and other documents prepared by the Architect or the Architect's consultants, and unless otherwise indicated the Architect and the Architect's consultants shall be deemed the authors of them and will retain all common law, statutory and other reserved rights, in addition to the copyrights. All copies of them, except the Contractor's record set, shall be returned or suitably accounted for to the Architect, on request, upon completion of the Work. The Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants, and copies thereof furnished to the Contractor, are for use solely with respect to this Project. They are not to be used by the Contractor or any Subcontractor, sub-subcontractor or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work without the specific written consent of the Owner, Architect and the Architect's consultants. The Contractor, Subcontractors, sub-subcontractors and material or equipment suppliers are authorized to use and reproduce applicable portions of the Drawings, Specifications and other

documents prepared by the Architect and the Architect's consultants appropriate to and for use in the execution of their Work under the Contract Documents. All copies made under this authorization shall bear the statutory copyright notice, if any, shown on the Drawings, Specifications and other documents prepared by the Architect and the Architect's consultants. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with this Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' copyrights or other reserved rights.

## **ARTICLE 7 OWNER**

### **§ 7.1 INFORMATION AND SERVICES REQUIRED OF THE OWNER**

**§ 7.1.1** The Owner shall furnish and pay for surveys and a legal description of the site.

**§ 7.1.2** The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

**§ 7.1.3** Except for permits and fees which are the responsibility of the Contractor under the Contract Documents, the Owner shall secure and pay for other necessary approvals, easements, assessments and charges required for the construction, use or occupancy of permanent structures or permanent changes in existing facilities.

### **§ 7.2 OWNER'S RIGHT TO STOP THE WORK**

If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents, or persistently fails to carry out the Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order is eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity.

### **§ 7.3 OWNER'S RIGHT TO CARRY OUT THE WORK**

If the Contractor defaults or persistently fails or neglects to carry out the Work in accordance with the Contract Documents, or fails to perform a provision of the Contract, the Owner, after 10 days' written notice to the Contractor and without prejudice to any other remedy the Owner may have, may make good such deficiencies and may deduct the reasonable cost thereof, including Owner's expenses and compensation for the Architect's services made necessary thereby, from the payment then or thereafter due the Contractor.

## **ARTICLE 8 CONTRACTOR**

### **§ 8.1 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR**

**§ 8.1.1** Since the Contract Documents are complementary, before starting each portion of the Work, the Contractor shall carefully study and compare the various Drawings and other Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 7.1.1, shall take field measurements of any existing conditions related to that portion of the Work and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating construction by the Contractor and are not for the purpose of discovering errors, omissions or inconsistencies in the Contract Documents; however, any errors, omissions or inconsistencies discovered by the Contractor shall be reported promptly to the Architect as a request for information in such form as the Architect may require.

**§ 8.1.2** Any design errors or omissions noted by the Contractor during this review shall be reported promptly to the Architect, but it is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents.

### **§ 8.2 SUPERVISION AND CONSTRUCTION PROCEDURES**

**§ 8.2.1** The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures, and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall be fully and solely responsible for the jobsite safety thereof unless the Contractor gives timely written notice to the Owner and Architect that such means, methods, techniques, sequences or procedures may not be safe.

§ 8.2.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors.

### § 8.3 LABOR AND MATERIALS

§ 8.3.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 8.3.2 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 8.3.3 The Contractor shall deliver, handle, store and install materials in accordance with manufacturers' instructions.

§ 8.3.4 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order.

### § 8.4 WARRANTY

The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation or normal wear and tear and normal usage.

### § 8.5 TAXES

The Contractor shall pay sales, consumer, use and other similar taxes which are legally enacted when bids are received or negotiations concluded.

### § 8.6 PERMITS, FEES AND NOTICES

§ 8.6.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit and other permits and governmental fees, licenses and inspections necessary for proper execution and completion of the Work.

§ 8.6.2 The Contractor shall comply with and give notices required by laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work. The Contractor shall promptly notify the Architect and Owner if the Drawings and Specifications are observed by the Contractor to be at variance therewith. If the Contractor performs Work knowing it to be contrary to laws, statutes, ordinances, building codes, and rules and regulations without such notice to the Architect and Owner, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

### § 8.7 SUBMITTALS

§ 8.7.1 The Contractor shall review for compliance with the Contract Documents, approve in writing and submit to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents with reasonable promptness. The Work shall be in accordance with approved submittals.

§ 8.7.2 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents.

### § 8.8 USE OF SITE

The Contractor shall confine operations at the site to areas permitted by law, ordinances, permits and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.



### § 8.9 CUTTING AND PATCHING

The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

### § 8.10 CLEANING UP

The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus material.

### § 8.11 ROYALTIES, PATENTS AND COPYRIGHTS

The Contractor shall pay all royalties and license fees; shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect, unless the Contractor has reason to believe that there is an infringement of patent or copyright and fails to promptly furnish such information to the Architect.

### § 8.12 ACCESS TO WORK

The Contractor shall provide the Owner and Architect access to the Work in preparation and progress wherever located.

### § 8.13 INDEMNIFICATION

**§ 8.13.1** To the fullest extent permitted by law and to the extent claims, damages, losses or expenses are not covered by Project Management Protective Liability insurance purchased by the Contractor in accordance with Section 16.3, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity which would otherwise exist as to a party or person described in this Section 8.13.

**§ 8.13.2** In claims against any person or entity indemnified under this Section 8.13 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them or anyone for whose acts they may be liable, the indemnification obligation under Section 8.13.1 shall not be limited by a limitation on amount or type of damages, compensation or benefits payable by or for the Contractor or Subcontractor under workers' compensation acts, disability benefit acts or other employee benefit acts.

## ARTICLE 9 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

**§ 9.1** The Architect will provide administration of the Contract and will be an Owner's representative (1) during construction, (2) until final payment is due and (3) with the Owner's concurrence, from time to time during the one-year period for correction of Work described in Section 17.2.

**§ 9.2** The Architect, as a representative of the Owner, will visit the site at intervals appropriate to the stage of the Contractor's operations (1) to become generally familiar with and to keep the Owner informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 8.2.1.

§ 9.3 The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 9.4 Based on the Architect's evaluations of the Work and of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 9.5 The Architect will have authority to reject Work that does not conform to the Contract Documents.

§ 9.6 The Architect will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 9.7 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect will make initial decisions on all claims, disputes and other matters in question between the Owner and Contractor but will not be liable for results of any interpretations or decisions so rendered in good faith.

§ 9.8 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 9.9 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner, Contractor and Architect. Consent shall not be unreasonably withheld.

#### § 9.10 CLAIMS AND DISPUTES

§ 9.10.1 Claims, disputes and other matters in question arising out of or relating to this Contract, including those alleging an error or omission by the Architect but excluding those arising under Section 15.2, shall be referred initially to the Architect for decision. Such matters, except those relating to aesthetic effect and except those waived as provided for in Section 9.11 and Sections 14.5.3 and 14.5.4, shall, after initial decision by the Architect or 30 days after submission of the matter to the Architect, be subject to mediation as a condition precedent to arbitration or the institution of legal or equitable proceedings by either party.

§ 9.10.2 If a claim, dispute or other matter in question relates to or is the subject of a mechanic's lien, the party asserting such matter may proceed in accordance with applicable law to comply with the lien notice or filing deadlines prior to resolution of the matter by the Architect, by mediation or by arbitration.

§ 9.10.3 The parties shall endeavor to resolve their disputes by mediation which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Mediation Rules of the American Arbitration Association currently in effect. Request for mediation shall be filed in writing with the other party to this Agreement and with the American Arbitration Association. The request may be made concurrently with the filing of a demand for arbitration but, in such event, mediation shall proceed in advance of arbitration or legal or equitable proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order.

§ 9.10.4 Claims, disputes and other matters in question arising out of or relating to the Contract that are not resolved by mediation, except matters relating to aesthetic effect and except those waived as provided for in Section 9.11 and Sections 14.5.3 and 14.5.4, shall be decided by arbitration which, unless the parties mutually agree otherwise, shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand for arbitration shall be filed in writing with the other party to this Agreement and with the American Arbitration Association and shall be made within a reasonable time after the dispute has arisen. The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof. Except by written consent of the person or entity sought to be joined, no arbitration arising out of or relating to the Contract Documents shall include, by consolidation, joinder or in any other manner, any person or entity not a party to the Agreement under which such arbitration arises, unless

it is shown at the time the demand for arbitration is filed that (1) such person or entity is substantially involved in a common question of fact or law, (2) the presence of such person or entity is required if complete relief is to be accorded in the arbitration, (3) the interest or responsibility of such person or entity in the matter is not insubstantial, and (4) such person or entity is not the Architect or any of the Architect's employees or consultants. The agreement herein among the parties to the Agreement and any other written agreement to arbitrate referred to herein shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

#### **§ 9.11 CLAIMS FOR CONSEQUENTIAL DAMAGES**

The Contractor and Owner waive claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes:

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 19. Nothing contained in this Section 9.11 shall be deemed to preclude an award of liquidated direct damages, when applicable, in accordance with the requirements of the Contract Documents.

#### **ARTICLE 10 SUBCONTRACTORS**

**§ 10.1** A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site.

**§ 10.2** Unless otherwise stated in the Contract Documents or the bidding requirements, the Contractor, as soon as practicable after award of the Contract, shall furnish in writing to the Owner through the Architect the names of the Subcontractors for each of the principal portions of the Work. The Contractor shall not contract with any Subcontractor to whom the Owner or Architect has made reasonable and timely objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

**§ 10.3** Contracts between the Contractor and Subcontractors shall (1) require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by the terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work, which the Contractor, by the Contract Documents, assumes toward the Owner and Architect, and (2) allow the Subcontractor the benefit of all rights, remedies and redress afforded to the Contractor by these Contract Documents.

#### **ARTICLE 11 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS**

**§ 11.1** The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts in connection with other portions of the Project or other construction or operations on the site under conditions of the contract identical or substantially similar to these, including those portions related to insurance and waiver of subrogation. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such claim as provided in Section 9.10.

**§ 11.2** The Contractor shall afford the Owner and separate contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's activities with theirs as required by the Contract Documents.

**§ 11.3** The Owner shall be reimbursed by the Contractor for costs incurred by the Owner which are payable to a separate contractor because of delays, improperly timed activities or defective construction of the Contractor. The Owner shall be responsible to the Contractor for costs incurred by the Contractor because of delays, improperly timed activities, damage to the Work or defective construction of a separate contractor.

## ARTICLE 12 CHANGES IN THE WORK

§ 12.1 The Owner, without invalidating the Contract, may order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly. Such changes in the Work shall be authorized by written Change Order signed by the Owner, Contractor and Architect, or by written Construction Change Directive signed by the Owner and Architect.

§ 12.2 The cost or credit to the Owner from a change in the Work shall be determined by mutual agreement of the parties or, in the case of a Construction Change Directive, by the Contractor's cost of labor, material, equipment, and reasonable overhead and profit.

§ 12.3 The Architect will have authority to order minor changes in the Work not involving adjustment in the Contract Sum or extension of the Contract Time and not inconsistent with the intent of the Contract Documents. Such changes shall be effected by written order and shall be binding on the Owner and Contractor. The Contractor shall carry out such written orders promptly.

§ 12.4 If concealed or unknown physical conditions are encountered at the site that differ materially from those indicated in the Contract Documents or from those conditions ordinarily found to exist, the Contract Sum and Contract Time shall be equitably adjusted.

## ARTICLE 13 TIME

§ 13.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 13.2 The date of Substantial Completion is the date certified by the Architect in accordance with Section 14.4.2.

§ 13.3 If the Contractor is delayed at any time in the commencement or progress of the Work by changes ordered in the Work, by labor disputes, fire, unusual delay in deliveries, abnormal adverse weather conditions not reasonably anticipatable, unavoidable casualties or any causes beyond the Contractor's control, or by other causes which the Architect determines may justify delay, then the Contract Time shall be extended by Change Order for such reasonable time as the Architect may determine, subject to the provisions of Section 9.10.

## ARTICLE 14 PAYMENTS AND COMPLETION

### § 14.1 APPLICATIONS FOR PAYMENT

§ 14.1.1 Payments shall be made as provided in Article 4 of this Agreement. Applications for Payment shall be in a form satisfactory to the Architect.

§ 14.1.2 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or other encumbrances adverse to the Owner's interests.

### § 14.2 CERTIFICATES FOR PAYMENT

§ 14.2.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as the Architect determines is properly due, or notify the Contractor and Owner in writing of the Architect's reasons for withholding certification in whole or in part as provided in Section 14.2.3.

§ 14.2.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluations of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of the Architect's knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance

of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

**§ 14.2.3** The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 14.2.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 14.2.1. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 8.2.2, because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 persistent failure to carry out the Work in accordance with the Contract Documents.

**§ 14.2.4** When the above reasons for withholding certification are removed, certification will be made for amounts previously withheld.

#### **§ 14.3 PAYMENTS TO THE CONTRACTOR**

**§ 14.3.1** The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to sub-subcontractors in similar manner.

**§ 14.3.2** Neither the Owner nor Architect shall have an obligation to pay or see to the payment of money to a Subcontractor except as may otherwise be required by law.

**§ 14.3.3** A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

#### **§ 14.4 SUBSTANTIAL COMPLETION**

**§ 14.4.1** Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

**§ 14.4.2** When the Architect determines that the Work or designated portion thereof is substantially complete, the Architect will issue a Certificate of Substantial Completion which shall establish the date of Substantial Completion, establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work

and insurance, and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion. Upon the issuance of the Certificate of Substantial Completion, the Architect will submit it to the Owner and Contractor for their written acceptance of responsibilities assigned to them in such Certificate.

#### § 14.5 FINAL COMPLETION AND FINAL PAYMENT

§ 14.5.1 Upon receipt of written notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection and, when the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions stated in Section 14.5.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 14.5.2 Final payment shall not become due until the Contractor has delivered to the Owner a complete release of all liens arising out of this Contract or receipts in full covering all labor, materials and equipment for which a lien could be filed, or a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including costs and reasonable attorneys' fees.

§ 14.5.3 The making of final payment shall constitute a waiver of claims by the Owner except those arising from:

- .1 liens, claims, security interests or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents; or
- .3 terms of special warranties required by the Contract Documents.

§ 14.5.4 Acceptance of final payment by the Contractor, a Subcontractor or material supplier shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

#### ARTICLE 15 PROTECTION OF PERSONS AND PROPERTY

##### § 15.1 SAFETY PRECAUTIONS AND PROGRAMS

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract. The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein; and
- .3 other property at the site or adjacent thereto.

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations and lawful orders of public authorities bearing on safety of persons and property and their protection from damage, injury or loss. The Contractor shall promptly remedy damage and loss to property caused in whole or in part by the Contractor, a Subcontractor, a sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 15.1.2 and 15.1.3; except for damage or loss attributable to acts or omissions of the Owner or Architect or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 8.13.

##### § 15.2 HAZARDOUS MATERIALS

§ 15.2.1 If reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and Architect in writing. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner

and Contractor. The Contract Time shall be extended appropriately and the Contract Sum shall be increased in the amount of the Contractor's reasonable additional costs of shutdown, delay and start-up, which adjustments shall be accomplished as provided in Article 12 of this Agreement.

**§ 15.2.2** To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 15.2.1 and has not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), and provided that such damage, loss or expense is not due to the sole negligence of a party seeking indemnity.

**§ 15.2.3** If, without negligence on the part of the Contractor, the Contractor is held liable for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall indemnify the Contractor for all cost and expense thereby incurred.

## **ARTICLE 16 INSURANCE**

**§ 16.1** The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located insurance for protection from claims under workers' compensation acts and other employee benefit acts which are applicable, claims for damages because of bodily injury, including death, and claims for damages, other than to the Work itself, to property which may arise out of or result from the Contractor's operations under the Contract, whether such operations be by the Contractor or by a Subcontractor or anyone directly or indirectly employed by any of them. This insurance shall be written for not less than limits of liability specified in the Contract Documents or required by law, whichever coverage is greater, and shall include contractual liability insurance applicable to the Contractor's obligations. Certificates of Insurance acceptable to the Owner shall be filed with the Owner prior to commencement of the Work. Each policy shall contain a provision that the policy will not be canceled or allowed to expire until at least 30 days' prior written notice has been given to the Owner.

### **§ 16.2 OWNER'S LIABILITY INSURANCE**

The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance.

### **§ 16.3 PROJECT MANAGEMENT PROTECTIVE LIABILITY INSURANCE**

**§ 16.3.1** Optionally, the Owner may require the Contractor to purchase and maintain Project Management Protective Liability insurance from the Contractor's usual sources as primary coverage for the Owner's, Contractor's and Architect's vicarious liability for construction operations under the Contract. Unless otherwise required by the Contract Documents, the Owner shall reimburse the Contractor by increasing the Contract Sum to pay the cost of purchasing and maintaining such optional insurance coverage, and the Contractor shall not be responsible for purchasing any other liability insurance on behalf of the Owner. The minimum limits of liability purchased with such coverage shall be equal to the aggregate of the limits required for Contractor's Liability insurance under Section 16.1.

**§ 16.3.2** To the extent damages are covered by Project Management Protective Liability insurance, the Owner, Contractor and Architect waive all rights against each other for damages, except such rights as they may have to the proceeds of such insurance. The policy shall provide for such waivers of subrogation by endorsement or otherwise.

**§ 16.3.3** The Owner shall not require the Contractor to include the Owner, Architect or other persons or entities as additional insureds on the Contractor's Liability insurance under Section 16.1.

### **§ 16.4 PROPERTY INSURANCE**

**§ 16.4.1** Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance on an "all-risk" policy form, including builder's risk, in the amount of the initial Contract Sum, plus the value of subsequent modifications and cost of materials supplied and installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who



are beneficiaries of such insurance, until final payment has been made as provided in Section 14.5 or until no person or entity other than the Owner has an insurable interest in the property required by this Section 16.4 to be covered, whichever is later. This insurance shall include interests of the Owner, the Contractor, Subcontractors and sub-subcontractors in the Project.

§ 16.4.2 The Owner shall file a copy of each policy with the Contractor before an exposure to loss may occur. Each policy shall contain a provision that the policy will not be canceled or allowed to expire, and that its limits will not be reduced, until at least 30 days' prior written notice has been given to the Contractor.

#### § 16.5 WAIVERS OF SUBROGATION

§ 16.5.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 11, if any, and any of their subcontractors, sub-subcontractors, agents and employees for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to Section 16.4 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 11, if any, and the subcontractors, sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

§ 16.5.2 A loss insured under the Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriate agreements, written where legally required for validity, shall require Subcontractors to make payments to their sub-subcontractors in similar manner.

#### ARTICLE 17 CORRECTION OF WORK

§ 17.1 The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 17.2 In addition to the Contractor's obligations under Section 8.4, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 14.4.2, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty.

§ 17.3 If the Contractor fails to correct nonconforming Work within a reasonable time, the Owner may correct it in accordance with Section 7.3.

§ 17.4 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.

§ 17.5 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Article 17.



## ARTICLE 18 MISCELLANEOUS PROVISIONS

### § 18.1 ASSIGNMENT OF CONTRACT

Neither party to the Contract shall assign the Contract without written consent of the other.

### § 18.2 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located.

### § 18.3 TESTS AND INSPECTIONS

Tests, inspections and approvals of portions of the Work required by the Contract Documents or by laws, ordinances, rules, regulations or orders of public authorities having jurisdiction shall be made at an appropriate time. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

### § 18.4 COMMENCEMENT OF STATUTORY LIMITATION PERIOD

As between Owner and Contractor, any applicable statute of limitations shall commence to run and any alleged cause of action shall be deemed to have accrued:

- .1 not later than the date of Substantial Completion for acts or failures to act occurring prior to the relevant date of Substantial Completion;
- .2 not later than the date of issuance of the final Certificate for Payment for acts or failures to act occurring subsequent to the relevant date of Substantial Completion and prior to the issuance of the final Certificate for Payment; and
- .3 not later than the date of the relevant act or failure to act by the Contractor for acts or failures to act occurring after the date of the final Certificate for Payment.

## ARTICLE 19 TERMINATION OF THE CONTRACT

### § 19.1 TERMINATION BY THE CONTRACTOR

If the Architect fails to recommend payment for a period of 30 days through no fault of the Contractor, or if the Owner fails to make payment thereon for a period of 30 days, the Contractor may, upon seven additional days' written notice to the Owner and the Architect, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery, including reasonable overhead, profit and damages applicable to the Project.

### § 19.2 TERMINATION BY THE OWNER

§ 19.2.1 The Owner may terminate the Contract if the Contractor:

- .1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 19.2.2 When any of the above reasons exists, the Owner, upon certification by the Architect that sufficient cause exists to justify such action, may, without prejudice to any other remedy the Owner may have and after giving the Contractor seven days' written notice, terminate the Contract and take possession of the site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor and may finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 19.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 19.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 19.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Architect, upon application, and this obligation for payment shall survive termination of the Contract.

**ARTICLE 20 OTHER CONDITIONS OR PROVISIONS**

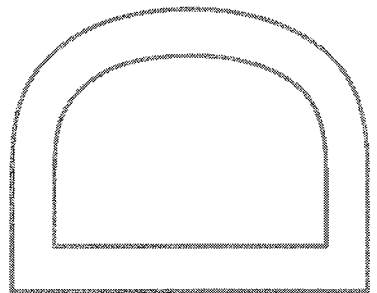
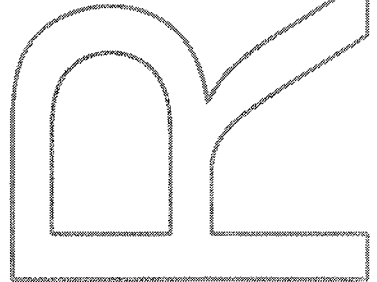
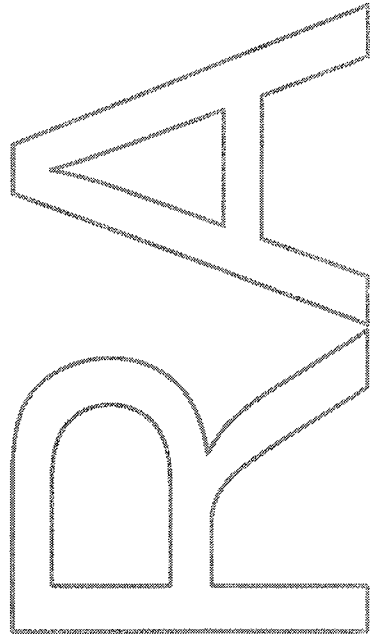
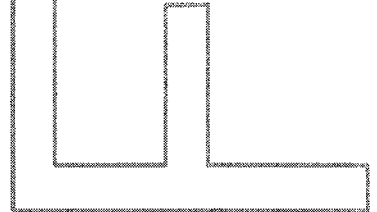
This Agreement entered into as of the day and year first written above.

\_\_\_\_\_  
*OWNER (Signature)*

\_\_\_\_\_  
*CONTRACTOR (Signature)*

\_\_\_\_\_  
*(Printed name and title)*

\_\_\_\_\_  
*(Printed name and title)*



## SECTION 00800

### SUPPLEMENTARY CONDITIONS AND ADDITIONAL CONDITIONS

**PROJECT:** Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

**OWNER:** Troy School District  
4400 Livernois  
Troy, MI 48098

**ARCHITECT:** Integrated Design Solutions, LLC  
888 W. Big Beaver, Suite 200  
Troy, MI 48084  
(248) 823-2100  
(248) 823-2200 (Fax)

**THE FOLLOWING SUPPLEMENTS MODIFY THE "GENERAL CONDITIONS" INCLUDED IN THE "ABBREVIATED STANDARD FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION PROJECTS OF LIMITED SCOPE", AIA DOCUMENT A107, 1997 EDITION. WHERE A PORTION OF THE GENERAL CONDITIONS IS MODIFIED OR DELETED BY THESE SUPPLEMENTARY CONDITIONS, THE UNALTERED PORTIONS OF THE GENERAL CONDITIONS SHALL REMAIN IN EFFECT.**

**EXPLANATION OF NUMBERING:** Article 20 shall constitute revisions and additions to and follow the same format of the General Conditions.

## ARTICLE 20

### OTHER CONDITIONS OR PROVISIONS

20.1 Add new subparagraph 6.6 as follows:

"6.6 The Contractor will be furnished free of charge six (6) copies of Drawings and Project Manuals for execution of the Work."

20.2 Delete subparagraph 12.2 and add the following in its place:

"12.2 The cost or credit to the Owner from a change in the work shall be determined by mutual agreement, by an acceptable estimate and lump sum proposal by the Contractor or by actual cost of all labor and materials and a percentage or fixed fee for all other changes, such as overhead, profit, insurance, taxes and bonds. On any change which involves a net credit to the Owner, no allowance for overhead and profit shall be figured.

12.2.1 If none of the foregoing methods is agreed upon, the Contractor, upon receipt of an order as hereinbefore stated, shall proceed with the work. In such case the Contractor shall keep and present in such form as the Owner may direct, a correct account of the cost, together with vouchers. In any case, the Owner shall certify to the amount including the specified allowance for overhead and profit, due the Contractor.

12.2.2 The allowable fee for added work by Contractor's own forces shall not exceed 15% of additional cost and his fee on work performed by Subcontractors shall not exceed 7-1/2% of additional cost. Quotations by Subcontractors at all times shall be subject to these same limitations."

20.3 Modifications to subparagraph 14.1.1  
To the end of this subparagraph add the following:

"The form of Application for Payment shall be a notarized AIA Document G702, Application and Certification for Payment, supported by AIA Document G703, Continuation Sheet."

20.4 Add new subparagraph 14.1.2 as follows:

"14.1.2 Until final completion, the Owner will pay ninety (90) percent of the amount due the Contractor on account of progress payments. Upon final completion, the Architect will certify payment in full."

20.5 Modifications to subparagraph 16.1.  
To the end of this subparagraph add the following:

"16.1.1 The insurance by Subparagraph 16.1 shall be written for not less than the following limits, or greater if required by law:

1. Worker's Compensation:
  - a. State: Statutory
  - b. Applicable Federal (e.g. Longshoremen's): Statutory
  - c. Employer's Liability: \$1,000,000.00 per Accident  
\$1,000,000.00 Disease, Policy Limit  
\$1,000,000.00 Disease, Each Employee
2. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage);
  - a. Bodily Injury:  
\$1,000,000.00 Each Occurrence  
\$1,000,000.00 Aggregate
  - b. Property Damage:  
\$1,000,000.00 Each Occurrence  
\$1,000,000.00 Aggregate
  - c. Products and Completed Operations to be maintained for one (1) year after final payment:  
\$1,000,000.00 Aggregate
  - d. Broad Form Property Damage Coverage shall include Completed Operations.

3.	Contractual Liability:		
a.	Bodily Injury:		
	\$1,000,000.00	Each Occurrence	
	\$1,000,000.00	Aggregate	
b.	Property Damage:		
	\$1,000,000.00	Each Occurrence	
	\$1,000,000.00	Aggregate	
4.	Personal Injury, with Employment Exclusion deleted:		
	\$1,000,000.00	Aggregate	
5.	Business Auto Liability (including owned, non-owned and hired vehicles):		
a.	Bodily Injury:		
	\$1,000,000.00	Each Person	
	\$1,000,000.00	Each Occurrence	
b.	Property Damage:		
	\$1,000,000.00	Each Occurrence	
6.	Umbrella Excess Liability (Bodily Injury and Property Damage Combined)		\$1,000,000.00

"16.1.2" Liability Insurance shall include all major divisions of coverage and be on a comprehensive basis including:

1. Premises Operations (including X, C, and U coverages as applicable).
2. Independent Contractor's Protective.
3. Products and Completed Operations.
4. Personal Injury Liability with Employment Exclusion deleted.
5. Owned, non-owned and hired motor vehicles.
6. Broad Form Property Damage including Completed Operations.

16.1.3 If the General Liability coverages are provided by a Commercial General Liability Policy on a claims-made basis, the policy date or Retroactive Date shall predate the Contract; the termination date of the policy or applicable extended reporting period shall be no earlier than the termination date of coverages required to be maintained after final payment, certified in accordance with Subparagraph 9.10.2.

20.6 Delete paragraph 16.3 and subparagraphs 16.3.1, 16.3.2 and 16.3.3 in their entirety.

20.7 Delete paragraph 16.4 and subparagraphs 16.4.1 and 16.4.2 in their entirety.

20.8 Modifications to Article 19.  
Add the following subparagraphs to the end of Article 19.

"19.3" Termination by the Owner for Convenience.

"19.3.1 The Owner may, at any time, terminate the contract for the Owner's convenience and without cause.

"19.3.2 Upon receipt of written note from the Owner of such termination for the Owner's convenience, the Contractor shall:

1. Cease operations as directed by the Owner in the notice;
2. Take actions necessary, or that the Owner may direct, for the protection and preservation of the work; and
3. Except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing Subcontracts and purchase orders and enter into no further Subcontracts and purchase orders.

19.3.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment from the Owner on the same basis provided in Subparagraph 20.2."

20.9 BONDS

20.9.1 The Contractor shall furnish a Performance Bond and a Labor and Material Payment Bond covering faithful performance of the Contract and payment of obligations arising thereunder. Bonds shall be obtained from a company licensed to do business in the State of Michigan and the cost thereof shall be included in the Contract Sum. The amount of each bond shall be equal to 100 percent of the Contract Sum.

20.9.2 The Contractor shall deliver the required bonds to the Owner not later than three days following the date the Agreement is entered into, or if the Work is to be commenced prior thereto in response to a letter of intent, the Contractor shall, prior to the commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished.

20.10 EQUAL OPPORTUNITY

20.10. The Contractor shall maintain policies of employment as follows:

20.10.1. The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take affirmative action to insure that applicants are employed, and that employees are treated during employment without regard to their race, religion, color, sex or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the policies of non-discrimination.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

20.10.2. The Contractor and the Contractor's Subcontractors shall, in all solicitations or advertisements for employees placed by them or on their behalf, state that all qualified applicants will receive consideration for employment without regard to race, religion, color, sex or national origin.

**END OF SECTION 00800**

## **SECTION 07841 - THROUGH-PENETRATION FIRESTOP SYSTEMS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes through-penetration firestop systems for penetrations through the following fire-resistance-rated assemblies, including both empty openings and openings containing penetrating items:
  - 1. Floors.
  - 2. Walls and partitions.
  - 3. Construction enclosing compartmentalized areas.
- B. Related Sections include the following:
  - 1. Division 16 Sections specifying cable and conduit penetrations.

#### **1.3 PERFORMANCE REQUIREMENTS**

- A. General: For the following constructions, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of assembly penetrated.
  - 1. Fire-resistance-rated non-load-bearing walls, including partitions, with fire-protection-rated openings.
  - 2. Fire-resistance-rated floor assemblies.
- B. F-Rated Systems: Provide through-penetration firestop systems with F-ratings indicated, as determined per ASTM E 814, but not less than that equaling or exceeding fire-resistance rating of constructions penetrated.
- C. T-Rated Systems: For the following conditions, provide through-penetration firestop systems with T-ratings indicated, as well as F-ratings, as determined per ASTM E 814, where systems protect penetrating items exposed to potential contact with adjacent materials in occupiable floor areas:
  - 1. Penetrations located in construction containing fire-protection-rated openings.
  - 2. Penetrating items larger than 4-inch- diameter nominal pipe or 16 sq. in. in overall cross-sectional area.



- D. For through-penetration firestop systems exposed to view, traffic, moisture, and physical damage, provide products that after curing do not deteriorate when exposed to these conditions both during and after construction.
  - 1. For piping penetrations for plumbing and wet-pipe sprinkler systems, provide moisture-resistant through-penetration firestop systems.
  - 2. For floor penetrations with annular spaces exceeding 4 inches in width and exposed to possible loading and traffic, provide firestop systems capable of supporting floor loads involved either by installing floor plates or by other means.
  - 3. For penetrations involving insulated piping, provide through-penetration firestop systems not requiring removal of insulation.
  
- E. For through-penetration firestop systems exposed to view, provide products with flame-spread ratings of less than 25 and smoke-developed ratings of less than 450, as determined per ASTM E 84.

#### **1.4 SUBMITTALS**

- A. Product Data: For each type of through-penetration firestop system product indicated.
  
- B. Shop Drawings: For each through-penetration firestop system, show each kind of construction condition penetrated, relationships to adjoining construction, and kind of penetrating item. Include firestop design designation of testing and inspecting agency acceptable to authorities having jurisdiction that evidences compliance with requirements for each condition indicated.

#### **1.5 QUALITY ASSURANCE**

- A. Installer Qualifications: An experienced installer who has completed through-penetration firestop systems similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
  
- B. Fire-Test-Response Characteristics: Provide through-penetration firestop systems that comply with the following requirements and those specified in "Performance Requirements" Article:
  - 1. Firestopping tests are performed by a qualified testing and inspecting agency. A qualified testing and inspecting agency is UL ITS or another agency performing testing and follow-up inspection services for firestop systems acceptable to authorities having jurisdiction.
  - 2. Through-penetration firestop systems are identical to those tested per ASTM E 814. Provide rated systems complying with the following requirements:
    - a. Through-penetration firestop systems correspond to those indicated by reference to through-penetration firestop system designations listed by the following:
      - 1) UL in "Fire Resistance Directory."
      - 2) ITS in "Directory of Listed Products."

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver through-penetration firestop system products to Project site in original, unopened containers or packages with intact and legible manufacturers' labels identifying product and manufacturer; date of manufacture; lot number; shelf life, if applicable; qualified testing and inspecting agency's classification marking applicable to Project; curing time; and mixing instructions for multicomponent materials.
- B. Store and handle materials for through-penetration firestop systems to prevent their deterioration or damage due to moisture, temperature changes, contaminants, or other causes.

## **1.7 PROJECT CONDITIONS**

- A. Environmental Limitations: Do not install through-penetration firestop systems when ambient or substrate temperatures are outside limits permitted by firestop system manufacturers or when substrates are wet.
- B. Ventilate firestop systems per manufacturer's written instructions by natural means or, where this is inadequate, forced-air circulation.

## **1.8 COORDINATION**

- A. Coordinate construction of openings and penetrating items to ensure that through-penetration firestop systems are installed according to specified requirements.
- B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate through-penetration firestop systems.

## **PART 2 - PRODUCTS**

### **2.1 MANUFACTURERS**

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - 1. Hilti Construction Chemicals, Inc.
  - 2. Nelson Firestop Products.
  - 3. RectorSeal Corporation (The).
  - 4. Specified Technologies Inc.
  - 5. 3M Fire Protection Products.
  - 6. Tremco.

### **2.2 FIRESTOPPING, GENERAL**

- A. Compatibility: Provide through-penetration firestop systems that are compatible with one another, with the substrates forming openings, and with the items, if any, penetrating through-penetration firestop systems, under conditions of service and application, as demonstrated by through-penetration firestop system manufacturer based on testing and field experience.

- B. Accessories: Provide components for each through-penetration firestop system that are needed to install fill materials and to comply with "Performance Requirements" Article. Use only components specified by through-penetration firestop system manufacturer and approved by the qualified testing and inspecting agency for firestop systems indicated. Accessories include, but are not limited to, the following items:
1. Permanent forming/damming/backing materials, including the following:
    - a. Slag-/rock-wool-fiber insulation.
    - b. Sealants used in combination with other forming/damming/backing materials to prevent leakage of fill materials in liquid state.
    - c. Fire-rated form board.
    - d. Fillers for sealants.
  2. Temporary forming materials.
  3. Substrate primers.
  4. Collars.
  5. Steel sleeves.

### **2.3 FILL MATERIALS**

- A. General: Provide through-penetration firestop systems containing the types of fill materials indicated by reference to the types of materials described in this Article. Fill materials are those referred to in directories of the referenced testing and inspecting agencies as fill, void, or cavity materials.
- B. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer metallic sleeve lined with an intumescent strip, a radial extended flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.
- C. Latex Sealants: Single-component latex formulations that after cure do not re-emulsify during exposure to moisture.
- D. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.
- E. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced elastomeric sheet bonded to galvanized steel sheet.
- F. Intumescent Putties: Nonhardening dielectric, water-resistant putties containing no solvents, inorganic fibers, or silicone compounds.
- G. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.
- H. Mortars: Prepackaged, dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers, and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

- I. Pillows/Bags: Reusable, heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents and fire-retardant additives.
- J. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.
- K. Silicone Sealants: Moisture-curing, single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below:
  - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces and nonsag formulation for openings in vertical and other surfaces requiring a nonslumping, gunnable sealant, unless indicated firestop system limits use to nonsag grade for both opening conditions.

## **2.4 MIXING**

- A. For those products requiring mixing before application, comply with through-penetration firestop system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine substrates and conditions for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 PREPARATION**

- A. Surface Cleaning: Clean out openings immediately before installing through-penetration firestop systems to comply with written recommendations of firestop system manufacturer and the following requirements:
  - 1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of through-penetration firestop systems.
  - 2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with through-penetration firestop systems. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form-release agents from concrete.
- B. Priming: Prime substrates where recommended in writing by through-penetration firestop system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

- C. Masking Tape: Use masking tape to prevent through-penetration firestop systems from contacting adjoining surfaces that will remain exposed on completion of Work and that would otherwise be permanently stained or damaged by such contact or by cleaning methods used to remove smears from firestop system materials. Remove tape as soon as possible without disturbing firestop system's seal with substrates.

### **3.3 THROUGH-PENETRATION FIRESTOP SYSTEM INSTALLATION**

- A. General: Install through-penetration firestop systems to comply with "Performance Requirements" Article and firestop system manufacturer's written installation instructions and published drawings for products and applications indicated.
- B. Install forming/damming/backing materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.
  - 1. After installing fill materials, remove combustible forming materials and other accessories not indicated as permanent components of firestop systems.
- C. Install fill materials for firestop systems by proven techniques to produce the following results:
  - 1. Fill voids and cavities formed by openings, forming materials, accessories, and penetrating items as required to achieve fire-resistance ratings indicated.
  - 2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.
  - 3. For fill materials that will remain exposed after completing Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

### **3.4 CLEANING AND PROTECTION**

- A. Clean off excess fill materials adjacent to openings as Work progresses by methods and with cleaning materials that are approved in writing by through-penetration firestop system manufacturers and that do not damage materials in which openings occur.
- B. Provide final protection and maintain conditions during and after installation that ensure through-penetration firestop systems are without damage or deterioration at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated through-penetration firestop systems immediately and install new materials to produce through-penetration firestop systems complying with specified requirements.

END OF SECTION 07841

## **SECTION 16015 - TECHNOLOGY GENERAL REQUIREMENTS**

### **PART 1 - GENERAL**

#### **1.1 RELATED DOCUMENTS**

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

#### **1.2 SUMMARY**

- A. This Section includes general administrative and procedural requirements for technology installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 1 Sections.

1. Specifications and Drawings.
2. Related work provided by others.
3. Design requirements.
4. Performance requirements.
5. Substitutions.
6. Permits and fees.
7. Examination of drawings and premises.
8. Job conditions.
9. Submittals – Bid Proposal Requirements.
10. Project record documents.
11. Quality assurance.
12. Delivery, storage and handling.
13. Warranty.

- B. This Section includes basic requirements for materials and installations for technology work, including but not limited to:

1. General installation requirements.
2. Ceiling removal and replacement.
3. Sealing of openings.
4. Sleeves.
5. Expansion fittings.
6. Technology demolition work.
7. Cutting and patching.
8. Coordination with other trades.

#### **1.3 DRAWINGS AND SPECIFICATIONS**

- A. Drawings pertaining to this specification shall be considered as a part of said specification and shall be a part of the bid documents.
- B. The following sections specifically list the acceptable equipment types and items for this project. Where quantities are not noted, they may be obtained from the Drawings. In the event of a discrepancy between the Specifications and the Drawings, the greater quantity or better quality shall be furnished.

#### **1.4 RELATED WORK PROVIDED BY OTHERS**

- A. The conduit system, wireways, cable trays, outlet boxes and 120-volt and higher power systems are provided and installed by the electrical contractor.
- B. Telephone handsets and telephone switches.

#### **1.5 SYSTEM DESCRIPTION**

- A. Design Requirements: Furnish all labor, materials, equipment, technical supervision, and incidental services required to complete, test and leave ready for operation the technology systems as specified in the Division 16 Sections and as indicated on Drawings.
  - 1. The Technology Drawings indicate the general design and extent of the technology system. Comply with the Drawings as closely as actual construction of the building and the work of other Trades permit.
- B. Performance Requirements: Perform all work in a first class and workmanlike manner, in accordance with the latest accepted standards and practices for the Trades involved.
  - 1. All equipment of the same or similar systems shall be by the same manufacturer.
  - 2. All equipment shall be new, of modern design, and current standard production of the manufacturer.
- C. Substitutions: Base Bid must be in accordance with materials or products specified. Any exceptions to this must be approved in writing by the Engineer/Technology Designer ten (10) days or more prior to bidding.
  - 1. Voluntary alternates may be submitted for consideration, with listed addition or deduction to the Bid, but will not affect the awarding of the Contract.
- D. Permits and Fees: Obtain all permits, licenses, inspections and tests required. Upon completion of the Work, obtain and send certificates of inspections and approvals to the Engineer/Technology Designer.
  - 1. Pay all fees and expenses for permits, licenses, tests and inspections.
- E. Examination of Drawings and Premises: Before submitting Bids, examine the site, architectural, mechanical, electrical and other trades' drawings and specifications.
  - 1. Notify Engineer/Technology Designer should any discrepancies occur between them and the technology work.
  - 2. No additional charges will be allowed because of failure to make this examination, or to include all materials and labor required for the Work.
  - 3. Before submitting Bids, examine the premises to determine existing conditions for performing the Work. No additional charges will be allowed because of failure to make this examination or to include all materials and labor to complete the Work.

4. The Architectural Drawings take precedence in all matters pertaining to the building structure, Mechanical drawings in all matters pertaining to Mechanical trades and Electrical drawings in all matters pertaining to Electrical trades installation. However, where there are conflicts or differences between the Drawings for the various trades, report such conflicts or differences to the Engineer/Technology Designer who shall determine the course of action to be taken.

## **1.6 JOB CONDITIONS**

- A. Keep the job adequately staffed at all times. Unless illness, loss of personnel or other circumstances beyond the control of the contractor, maintain the same individual in charge throughout.
- B. Cooperate with all appropriate parties in order to achieve well-coordinated progress with the overall construction completion schedule and satisfactory final results.
- C. Watch for conflicts with work of other contractors on the job and execute, without claim for extra payment, moderate moves or changes as are necessary to accommodate other equipment or to preserve symmetry and aesthetically pleasing appearance.
- D. Immediately report to the Engineer/Technology Designer any design or installation irregularities, so that appropriate action may be taken.
- E. Do all cutting, patching and painting necessary for proper and finished installation of the system and repair any damage done as a result of such installation. Cleanup and dispose of trash from all work areas.

## **1.7 SUBMITTALS – BID PROPOSAL REQUIREMENTS**

- A. Provide a complete bill of materials depicting quantities, model numbers, catalog cuts, operating characteristics, physical characteristics, and equipment configuration for all equipment, connectors, faceplates, patch panels, wiring, and miscellaneous appurtenances included in this bid.
- B. The information shall be assembled in three ring binders complete with Table of Contents. All pages shall have page numbers, which shall be included in the Table of Contents.
- C. The Table of Contents shall be as follows:
  1. Tab No. 1 Cover Letter
  2. Tab No. 2 Bid Proposal Form
  3. Tab No. 3 Voluntary Alternates
  4. Tab No. 4 Names and Company Profiles for Prime Contractors, Major Subcontractors and Major Suppliers
  5. Tab No. 5 Organizational Chart / Schedule / Manpower
  6. Tab No. 6 Wiring and Equipment
  7. Tab No. 7 Maintenance Agreements and Service Agreements and Warranties
  8. Tab No. 8 Miscellaneous (Optional)



D. Description of Contents:

1. Tab No. 1, Cover Letter, shall include an executive overview of the project and depicting this contractor's complete understanding of the project.
2. Tab No. 2, Bid Proposal Form shall include a completed bid proposal as found in Section 00410, and the bid bond as a requirement to submit a qualified bid.
3. Tab No. 3, Voluntary Alternates, in a section, which is optional and made available to permit all bidders to submit alternates to the bid documents. These voluntary alternates shall clearly define the intent of the alternate, cost impact to implement the alternates, and a description of the deviation in functions and features between the alternates and the base bid documents. Include catalog cuts in this section for each alternate product required. The catalog cuts shall be keyed to the description of the alternate. Each alternate shall be independent of any alternate and shall be uniquely identified i.e. TAL -1 (Technology Alternate No. 1) TAL-2, TAL-3, etc.
4. Tab No. 4, List the names and company profiles for Prime Contractor, Major Subcontractors and Major Suppliers. In addition to the above information, describe each of the following:
  - a. The roles of the Prime Contractor, Subcontractors and Suppliers.
  - b. Description of corporate history for the Prime Contractor and planned Subcontractors, including dates of incorporation/founding, dates of any corporate mergers and/or acquisitions of Contractors and all present and former subsidiaries.
  - c. The number of years installing similar systems in facilities similar to the Owner's.
  - d. List of references that would be considered peers to the Owner utilizing similar systems.
  - e. Name of active projects, their sites and scope of work.
  - f. Provide recent customer references for similar work performed during the past twelve (12) months and provide documentation on installation staff training and certification.
  - g. Indicate whether Prime Contractor or any planned Subcontractor are currently in litigation over other projects or have been involved in litigation over other projects in the previous five (5) years.
5. Tab No. 5, Organizational Chart, shall depict the prime contractor, the subcontractors, major suppliers, trainers, project managers, name of project leader, superintendents, executive staff of each firm, service staff, the names of the individuals occupying those positions, telephone numbers, facsimile numbers, and E-mail addresses of all individuals on the organizational chart.
  - a. Provide a detailed schedule on a building-by-building basis indicating specific dates that you would plan to be working within the buildings. This schedule shall include major milestones required to achieve the completion dates previously specified.

6. Tab No. 6, Wiring and equipment shall include the following information:
  - a. Description of system operation.
  - b. Complete bill of materials indicating quantities, take-offs for the products being provided. The bill of materials shall separate labor and materials cost on a building-by-building basis.
  - c. Equipment model numbers.
  - d. Catalog cuts for all equipment being provided.
  - e. Manufacturer's product specifications and installation instructions.
  - f. A complete itemization of software products with catalog cuts.
  - g. Software product specifications and installation instructions.
  - h. System interconnection drawings or flow diagrams.
7. Tab Nos. 7 and 8 are self-descriptive as to their intended content.

### **1.8 PROJECT RECORD DOCUMENTS - GENERAL**

- A. Upon project close-out, provide the following:
  1. Hard and soft copies of the system configuration including:
    - a. Two (2) sets of prints indicating "as-built" conditions for Owner's record. Where IDS drawings are used for development of base files, IDS will provide the CAD files for this Contractor's use at no cost. These base files shall be updated to indicate "as-built" conditions and submitted with the two (2) sets of prints. The Drawings shall contain all title block information as originally issued by the Engineer/Technology Designer with the addition of the contractor's company name, address, telephone number, company's project number, date of issuance by the contractor, and issued for "as-built" conditions in title.
  2. Spare parts, if specified in the technology sections.
  3. Operating manuals and original installation media for all hardware, software and components installed under this contract.
  4. Warranty, support and licensing documentation organized in a 3-ring binder including a table of contents.
  5. Refer to technology sections for additional requirements.

### **1.9 QUALITY ASSURANCE**

- A. Regulatory Requirements:
  1. The system shall be registered under the most current applicable rulings of the Federal Communications Commission (FCC). Provide the FCC registration number with the equipment submittal. All components and installations shall bear an Underwriters' Laboratories (UL) listing.

2. Ordinances and Codes: Perform all work in accordance with applicable Federal, State and local ordinances and regulations and in accordance with the Rules, Regulations and Accepted Practices of the following Agencies:
    - a. ANSI American National Standards Institute
    - b. ASTM American Society for Testing and Materials
    - c. BICSI Building Industry Consulting Service International
    - d. EIA Electronics Industries Association
    - e. FCC Federal Communications Commission
    - f. ICEA Insulated Cable Engineers Association
    - g. IEEE Institute of Electrical and Electronics Engineers
    - h. ISO International Organization for Standardization
    - i. NEC National Electrical Code
    - j. NEMA National Electrical Manufacturer's Association
    - k. NFPA National Fire Protection Association.
    - l. TIA Telecommunications Industry Association
    - m. UL Underwriters Laboratories, Inc.
    - n. VESA Video Electronics Standards Association
  3. Notify the Engineer/Technology Designer before submitting this proposal should any changes in Drawings or Specifications be required to conform to the above codes, rules or regulations. After entering into Contract, make all changes required to conform to above ordinances, rules and regulations without additional expense to the Owner.
  4. The code or standard establishing the more stringent requirement shall be followed where areas of conflict occur between codes and standards or between codes and standards and specifications.
  5. Barrier-Free Regulations: All materials and installations shall comply with the requirements of the State of Michigan Handicapped Barrier-Free Regulations and with the Americans With Disabilities Act (ADA).
  6. Comply with federal, state and local labor regulations and applicable union regulations.
- B. Equipment Manufacturer Qualifications: The equipment shall be built and tested by a manufacturer who has regularly engaged in the production of said equipment for a minimum of five (5) years to assure one source of supply and responsibility.
- C. Equipment Supplier Qualifications: The supplier of the equipment shall maintain permanent service facilities within the area of the installation. The facilities shall include a permanent source of factory-trained service technicians on 24-hour call experienced in servicing this type of equipment and shall provide warranty and routine maintenance service to afford the Owner maximum coverage. He shall also provide a central source of support to warranty immediate answers to Owner's problems resulting from misunderstanding of the operation of the equipment.
- D. Equipment Installer Qualifications: The installation of the equipment shall be performed by fully qualified personnel, having had experience on the installation of this type and able to certify that they have had no less than five (5) years of continuous experience in this area and have made installation similar to this and of this size or larger.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

- E. Project Management Qualifications: The Contractor Project Manager shall have a minimum of five (5) years of project management experience. Upon request, contractor will provide a resume for all staff assigned to these positions.
- F. Field Measurements:
  - 1. Drawings are not intended to be scaled for roughing-in or to serve as shop drawings. Take all field measurements required for fitting the installation to the building.
- G. Sequencing and Scheduling: Sequence and schedule work so as to avoid interference with the work of other Trades. Be responsible for removing and relocating any work, which in the opinion of the Owner's Representatives causes interference.
- H. Parts listed shall be complete, accurate part/model numbers and equipment furnished shall conform to manufacturer's specifications.
- I. All materials shall be new and shall conform to applicable provisions of Underwriters Laboratories and the American Standards Association.

#### **1.10 DELIVERY, STORAGE AND HANDLING**

- A. Store technology equipment, at the vendor's location, as recommended in manufacturer's written instructions and in manufacturer's sealed protective packages until time of installation.
- B. If spare parts are specified, store spare parts at the vendor's location, as recommended in manufacturer's written instructions and in manufacturer's sealed protective packages. Deliver spare parts as part of the project close-out procedure.
- C. Protect technology equipment from damage and theft.

#### **1.11 WARRANTY**

- A. Warranty: Refer to technology sections for specific warranty requirements.

### **PART 2 - PRODUCTS**

#### **2.1 GENERAL**

- A. During the installation, make provisions for all equipment included in the base bid and any alternates, whether taken or not, so that items which are to be provided as alternates may be added to the system without rewiring or additional construction.
- B. All miscellaneous equipment required for a complete, professional installation shall be included in the base bid. No allowances for any additional equipment, hardware, software, cabling, or miscellaneous will be considered unless specifically excluded from the base bid.
- C. Time shall be allocated in the job for the purpose of training Owner's personnel in the proper use and maintenance of the provided equipment.
- D. No exposed cabling shall be permitted in the wiring of any functions of the provided system. All cable shall be housed in appropriate raceways suitable and designed for such purposes.

- E. All work materials shall be removed at the end of the workday and the work area left in the same condition as found.
- F. The technology bidder supplying the equipment shall show satisfactory evidence, upon request, that they maintain a fully equipped service organization capable of furnishing adequate inspection and service to the system, including replacement parts. The vendor shall be prepared to offer a service contract proposal for the maintenance of the system after the guarantee period. The bidder shall produce evidence that they have a fully experienced and established service organization for at least five (5) years and proven satisfactory installations during that time.
- G. While classes are in session, work in classroom areas and corridors shall be performed after normal school hours or during periods in which the building is not occupied by students (i.e. holiday breaks, half days, etc.). Adherence to a schedule of working hours, which is agreeable with the Owner, will be required.
- H. The Owner reserves the right to reject any or all alternate equipment bids and to select the bid that is considered to serve "THE BEST INTEREST OF THE OWNER."

## **2.2 CEILING REMOVAL AND REPLACEMENT**

- 1. The removal and reinstallation of the acoustical ceiling panels on a daily basis shall be the work of the trades requiring same.
- 2. This trade shall be responsible for the replacement of all damaged or soiled acoustical panel and cleaning the metal grid upon completion of all work.

## **2.3 SEALING OF OPENINGS**

- A. Seal openings around materials (Conduit, raceways, cable trays, panels, etc.) where floors, fire rated walls and smoke barriers are penetrated. (Fiberglass is not acceptable.) Fire and/or smoke barriers shall be UL Listed fire and smoke stop fittings and shall have fire rating equal to or greater than the penetrated barrier. Refer to Section 07841 "Through Penetration Firestop Systems".

## **2.4 SLEEVES**

- A. Provide sleeves where wiring passes through concrete floors, walls, beams and ceilings.
- B. Sleeves shall be galvanized rigid steel conduit with plastic bushings, both ends. Do not use aluminum or PVC conduit. Where specific sizes are not indicated on the Drawings, sleeves shall be sized to provide one-half (1/2) inch clearance around the outside surface of the item for which they were installed. They shall be cut flush with wall surfaces, and shall extend one inch, or as directed through floor. Sleeves shall be packed with approved non-combustible packing material and sealed with sealant to prevent passage of air, liquid or fumes from one area to another. The filler and sealant materials used shall be rated at least equal in fire resistance to the construction material being penetrated. Floor sleeves shall be sealed between floor and sleeve with concrete grout.

## **2.5 EXPANSION FITTINGS**

- A. Provide expansion fittings in all conduits, cable trays, and raceways that cross building expansion joints, both in concrete slabs and where exposed.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION USER ACCOUNTS**

- A. The Contractor shall provide evidence that all installation and temporary passwords and accounts have been disabled and removed at the conclusion of the project.

### **3.2 TECHNOLOGY DEMOLITION WORK**

- A. General: The majority of the demolition work has occurred under separate contract. Where additional demolition work is required, perform technology demolition work in a systematic manner. Use such methods as outlined below to complete Work indicated on the Drawings.
- B. Obtain approval from the Owner prior to interrupting existing services. All service interruptions shall be at a time suitable to the Owner. Where the Owner approves service interruptions at times resulting in premium time work to this Contractor, this Contractor shall include the premium time in his Base Bid.
- C. The associated conduit, raceway, junction boxes, supports, etc., of demolished equipment will be removed from the utilization equipment back to the source panel or backboard under separate electrical trades work. All associated wiring shall be removed back to the "sources" by this contractor as noted below:
  - 1. Telephone: Remove wiring back to communication room or other source.
  - 2. Data system: Remove wiring back to communication room or other source.
  - 3. Conduit in walls to remain: Abandon in place. Install blank coverplates.
- D. Where applicable, existing in-place conduit and raceway may be reused for new work providing that the installation is in accordance with requirements for new work.
- E. Where equipment is removed, outlets shall be properly blanked-off, and conduits capped. After alterations are completed, the entire installation shall present a "finished" look, as approved by the Engineer/Technology Designer. The original function of the present technology systems shall not be changed unless required by the specific revisions to the system as specified or as indicated.
- F. Materials salvaged from this work shall not be reused except where reuse is specifically indicated.
- G. Existing technology equipment removed, not reused and not specifically indicated to be turned over to the Owner, shall be legally and properly disposed of off Owner's property.
- H. Existing technology equipment specifically indicated to be turned over to the Owner shall be disconnected, removed and turned over to the Owner in an undamaged condition to an on site storage area as directed by the Owner.

### **3.3 CUTTING AND PATCHING**

- A. Refer to Division 1 for requirements for cutting, patching and refinishing work necessary for the installation of Technology Work.
- B. Direct miscellaneous cutting and patching of the existing building construction for the installation of the Technology Work.
- C. The cutting of holes through the existing building construction shall only be done by the use of abrasive saws and rotary coring machines. The use of hammer and drill points will not be permitted. The openings shall not be cut larger than necessary for the installation of the technology work. Openings shall then be grouted in. Where existing piping, etc. is removed; the unused openings shall be grouted in.
- D. The drilling or punching of structural members, such as holes through beams or columns, shall not be done without the specific permission of the Engineer/Technology Designer.
- E. Cutting of holes through floors and walls shall be done only at such locations as may be directed by the Engineer/Technology Designer.
- F. Cooperate with the other Contractors so that all cutting and repairing in any given area will be done simultaneously.

### **3.4 COORDINATION WITH OTHER TRADES**

- A. Install Work so as to avoid interferences with the Work of other trades. Be responsible for removing and relocating any work, which, in the opinion of the Owner's Representative, causes interferences.
- B. Should construction conditions prevent the installation of technology equipment at locations shown on the drawings, minor deviations may be permitted and shall be as directed by the Engineer/Technology Designer, and shall be made without additional cost to Owner.
- C. The Technology Trades will be responsible for all damage to other Work caused by their Work or through the neglect of their workers.
  - 1. All patching and repairing of any such damaged Work shall be performed by the trades that installed the Work, but the cost shall be paid by the Technology Trades.
- D. Coordinate installation of above ceiling work with Barton Malow field superintendant to assure that State of Michigan electrical inspections are performed without delays. This trade shall have all above ceiling cabling, terminations and cable tagging completed prior to electrical inspector's visit.

**END OF SECTION 16015**

## SECTION 16740 – WIRELESS NETWORK EQUIPMENT

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

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

#### 1.2 SUMMARY

- A. This Section includes wireless network equipment, software, associated peripherals, installation, and training including, but not limited, to the following:
  - 1. Wireless network access points.
  - 2. Site surveys.
  - 3. Software.
  - 4. Licensing.
  - 5. Program, configure and test all equipment.
  - 6. Provide record drawings and documented configuration.
  - 7. Provide on-site project management and support for equipment and software.
  - 8. Training of personnel on use of the system.

#### 1.3 SYSTEM DESCRIPTION

- A. This contract consists of providing, installing, configuring and validating a wireless network in the International Academy East (IAE) Building and integrating it into the Owner's existing District-wide wireless network. The wireless network shall be centrally managed and administered at the Services Building utilizing the District's existing wireless management systems. The wireless network shall be 802.11a/b/g compliant. The District's resources operate primarily on the 802.11a band with future guest access and legacy District devices operating on the 802.11b/g band.
- B. The District's existing wireless network consists of Cisco 1131AG and 1242AG access points (ap's) that are centrally managed by a Cisco wireless control system (WCS), 6500 series wireless service modules (WSM) and a Cisco wireless location appliance.
- C. Wireless voice services will not be utilized at this time. The wireless network shall be configured with a minimum signal strength of -75dBm and a minimum signal to noise ratio of 20dB. The District utilizes laptop computer carts with 15 laptops per cart. The wireless network shall be configured to service two laptop carts (a total of 30 laptop computers) located within one classroom with each laptop computer maintaining a minimum connection rate of 512Kbps. It is common for student end users to sit on the floor under desks, in the corner of the classroom and/or out in adjoining hallways. Signal strength, signal to noise ratio and connection rates shall be maintained from floor to ceiling including these common educational environment obstacles.
- D. The wireless network shall be configured for device roaming between access points within the building, monitoring, logging and centralized management. The wireless network shall be capable of authenticated guest access with monitoring and logging. The District's existing centralized management system includes, but is not limited to: wireless configuration, rogue access point detection and remediation, interference detection and avoidance, historic and real-time reporting and logging, real time and historic device location awareness, self healing, load balancing, SNMP and RF coverage visualization utilizing contractor imported CAD files. The



IAE wireless network shall integrate into and be managed by the District's existing management system.

- E. The Owner's LAN/WAN consists of redundant Cisco 6509 switches in the core located in the District head end at the Services building. Each of the Owner's buildings connects at a minimum of 1Gb on the backbone in a star configuration to the District head end via single mode fiber. Each building utilizes Cisco 3750's or 3560's for Power over Ethernet (PoE) and Cisco 2948's and/or 2960's for classroom connectivity. Each closet at each building contains at least one 24 port PoE switch that is reserved for this project. The Owner utilizes Cisco Works for the management of its network.
- F. This contractor shall perform pre-installation and post installation building surveys to ensure that the installed system meets operational expectations as described in Section 16740, paragraph 1.3.C and document and deliver the results to the Owner. This contractor shall perform density and throughput testing and document and deliver the results to the Owner.
- G. Increases or decreases to the quantities of wireless access points (wap's) required to meet the bid specification performance requirements will be made after pre-installation surveys are completed. Quantity changes will be made utilizing the Change Order process and unit pricing.
- H. This contractor shall document the equipment, software and methodology to be used for pre and post installation surveys. All surveys, testing and troubleshooting shall be performed utilizing the Owner's end user devices wherever possible in order to provide accurate, real world results.
- I. All miscellaneous hardware and software required for a complete, professional installation shall be included in the base bid. No allowances for any additional equipment, software, hardware, cabling, or miscellaneous will be considered unless specifically excluded from the base bid.
- J. The Owner has organized their network utilizing a private IP scheme. Typically each building has at least two (2) Class B IP subnets. Consult with the Owner and provide an IP addressing plan for all devices installed under this bid. The Owner must approve the IP addressing plan prior to implementation.
- K. This contractor shall be responsible for all network infrastructure configuration changes (VLAN creation, switch programming and configuration, active directory changes, WISM, WCS and location appliance configuration changes, etc.) necessary for this installation. This contractor shall make the changes in such a way as to avoid interfering with the Owner's existing wired and wireless operations or weakening the Owner's current security configuration.
- L. All work shall be in accordance with the true intent of these Specifications, and as required to leave the network equipment complete and in satisfactory operating condition.
  - 1. The Owner reserves the right to reject any or all alternate equipment bids and to select the bid that is considered to serve "THE BEST INTEREST OF THE OWNER."

#### **1.4 WARRANTY/SERVICE**

- A. Warranty: All products shall be warranted to be free from defects in material and workmanship upon installation.
- B. A three (3) year warranty period covering all items in this bid including all hardware, firmware, software and major and minor software updates shall commence after all the systems have been placed in working operation and accepted by the Owner by formal written acceptance. The

Contractor shall register all equipment in the name of the Owner and activate all warranties upon Owner acceptance as required by the equipment manufacturer.

- C. Systems and components shall be repaired or replaced within twenty-four (24) hours following report of defects by the Owner. Service will be provided on-site at the Troy School District.
- D. The network equipment Contractor (Vendor) shall be available and shall respond on-site within four (4) hours notice and without cost to the Owner during the duration of the warranty period.
- E. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Engineer/Technology Designer and the Owner.
- F. Provide to the Owner direct access to all equipment manufacturers' technical support structures for hardware and software support.

### **1.5 MAINTENANCE CONTRACT**

- A. Submit a maintenance and service contract proposal with service rates for the wireless network infrastructure covering all labor and materials necessary to repair damages to the system after the initial thirty-six (36) month guarantee. The contract shall include a differentiation between and definitions of "emergency" and "non-emergency" service with applicable rates for each.

### **1.6 TRAINING/SUPPORT**

- A. Training:
  - 1. None Required.
- B. Support:
  - 1. The wireless network supplier shall make available to the District, one (1) wireless Engineer on-site support and/or consulting to be used at the schools discretion following the acceptance of the system.
    - a. Provide a total of sixteen (16) hours.
    - b. Services shall be provided during the first six (6) months of full-scale operation following the acceptance of the system.
    - c. The District will provide seventy-two (72) hours notice for request of services.

### **1.7 SPARE PARTS**

- A. Provide three (3) sets of system hardware and software manuals.
- B. Provide the following spare parts:
  - 1. Two (2) Cisco 1131AG wireless access points including mounting hardware.
  - 2. Two (2) Cisco 1242AG wireless access points including mounting hardware and external antennae.
  - 3. One (1) access point protective cage.

## PART 2 - PRODUCT

### 2.1 WIRELESS ACCESS POINTS

- A. Wireless access points located within high foot traffic, low supervisory locations (corridors, cafeterias, gymnasiums, etc.) shall utilize integrated antennas. Wireless access points located in cafeterias, gymnasiums and other similar spaces shall be enclosed within a protective cage. Protective cages shall be sized to completely enclose the access point including antennae.
- B. Wireless access points located within low foot traffic, high supervisory locations(classrooms, office spaces, etc.) shall utilize integrated or external antennas in order to meet the bid specification requirements.
- C. Wireless access points shall meet the following minimum specifications:
1. Minimum dual radios ( 2.4GHz and 5GHz) providing concurrent operation of 802.11a and 802.11b/g services.
  2. Variable power transmit settings.
  3. Automatic power and channel selection.
  4. Wall or ceiling mountable. Access points mounted above the ceiling grid shall be plenum rated.
  5. PoE compatible with the District's existing Cisco 3750G-24PS and Cisco 3560G-24PS PoE switches.
  6. Auto sensing 10/100BASE-T Ethernet uplink.
  7. Power, link, and activity status LEDs.
  8. 802.1x and 802.11i certified and compliant.
  9. WEP, WAP and WAP2 certified and compliant.
  10. PKIP, MS-CHAPv2, PEAP, EAP-TLS certified and compliant.
  11. Remote management by a central controller.
  12. Subject to compliance with requirements, provide wireless access points as manufactured by one of the following or engineer-approved equal:
    - a. Cisco 1131AG
    - b. Cisco 1242AG
- D. Wireless access point final quantities will be determined based upon building surveys. Building quantities to be included with base bid shall be as follows:

Building	Qty Wireless Access Points
International Academy East	45

### 2.2 LABELING

- A. The contractor shall install Owner supplied asset tags on each piece of equipment provided under this bid which exceeds a unit price of \$500.00.
- B. The contractor shall create, populate and provide a Microsoft Excel spreadsheet with the following information for all equipment installed under this contract:
1. IP address
  2. Identification label
  3. Host name

4. Manufacturer serial number
  5. Install date
  6. MAC address
  7. Firmware version
  8. Owner supplied asset tag number
- C. The contractor shall provide and apply a mechanically produced identification label on each piece of equipment provided under this bid. The label shall follow the following District standards:
1. Wireless access points:
    - a. Consult with the Owner to develop a labeling scheme.
    - b. This label shall be programmed into each device. The District will review and approve the label.

### **PART 3 - EXECUTION**

#### **3.1 INSTALLATION-GENERAL**

- A. Configure all equipment identically with the latest stable firmware and software available at the time of installation.
- B. Unpack, assemble and program equipment. The Owner will provide IP addressing standards. Consult with the Owner to determine VLAN assignments, and other necessary configuration parameters.
- C. Remove all trash at the end of each workday. The District dumpsters may not be used for trash removal.
- D. Install, configure, program and test the systems.
- E. Make all configuration/programming changes to the District's existing wireless management systems (WISM, WCS, location appliance, etc.) necessary to integrate the new IAE wireless network into the District's existing wireless environment.
- F. Make all configuration/programming changes to the District's existing wired LAN/WAN (switches, core, VLANs, etc.) necessary to integrate the new IAE wireless network into the District's existing environment.
- G. Support the final installation at the Troy School District location to insure defect free installation.

#### **3.2 INSTALLATION-WIRELESS ACCESS POINTS**

- A. This contractor is responsible for performing pre-installation and post installation site surveys to determine exact wireless access point quantities and placement in order to meet the bid requirements.
- B. Refer to the drawings for specific end-user device density requirements. This contractor shall use the density requirements to determine wireless access point placement. The following are general requirements for coverage:
  1. Each individual classroom shall support two (2) laptop carts for a total of 30 devices with a sustained throughput of 512Kbps for each device.

2. Each office, receiving, kitchen, other administrative areas shall support 1-5 devices with a sustained throughput of 1024Kbps for each device.
  3. Conference rooms, work rooms, staff lounges and locker rooms shall support 10-15 devices with a sustained throughput of 512Kbps.
  4. Cafeteria and gymnasium shall support 35-45 devices with a sustained throughput of 512Kbps.
  5. Each one hundred feet (100') of corridor space shall support 10-15 devices with a sustained throughput of 512Kbps.
  6. It is common for students to sit on the floor, under desks and in the corners of the classroom. This contractor shall provide access point coverage to accommodate these unique educational environment usage scenarios.
- C. Wireless access points located within high foot traffic, low supervisory locations (corridors, cafeterias, gymnasiums, etc.) shall utilize integrated antennas. Wireless access points located in cafeterias, gymnasiums and other similar spaces shall be enclosed within a protective cage.
- D. Wireless access points located within low foot traffic, high supervisory locations (classrooms, office spaces, etc.) shall utilize integrated or external antennas in order to meet the bid specification requirements.
- E. All ceiling pad penetrations shall be dressed out using a grommet or escutcheon ring in order to provide a neat and professional finish.
- F. All access points shall be installed utilizing the District's existing PoE switch ports which have been reserved for this purpose. Each telecommunication closet contains at least one 24 port PoE switch. In closets where more PoE ports are required, this contractor will supply and install an additional switch utilizing unit pricing. Switch configuration files will be installed by District personnel. This contractor is responsible for installation, testing, asset tagging and labeling of the new switch.
- G. All wireless access points shall be securely mounted utilizing manufacturer provided mounts suitable for the application (i.e. ceiling grid mounts, wall mounts, etc.)
- H. The wireless access points shall be installed and configured with both "a" radios and "b/g" radios. The District's resources will operate primarily on the "a" band and legacy devices and guest access will operate on the "b/g" band.

### **3.3 INSTALLATION-WIRELESS NETWORK MANAGEMENT**

- A. Configure controllers and access points channel assignments and power levels. The wireless network shall be configured with a minimum signal strength of -75dBm and a minimum signal to noise ratio of 20dB. Refer to the drawings for expected end user device densities and required minimum throughput per device.
- B. Contractor to consult with the Owner and configure network settings, VLANs, SSID's, and other required settings for the wireless network infrastructure. This contractor shall be responsible for any required changes to the District's existing network infrastructure. Any changes to the existing infrastructure shall be made in such a way as to not weaken the District's security structure or disrupt existing operating parameters.
- C. Import building map CAD files provided by the Technology Designer/Owner.

- D. Configure controllers and access points for interference detection and avoidance, device location awareness, rogue access point detection, location and containment and RF heat map visualization.
- E. Configure controllers and access points for client load balancing based upon density and bandwidth utilization. Configure client handoff, full roaming and QoS.
- F. Configure SNMP.
- G. Contractor to consult with District personnel and configure real time and historical event logging.
- H. Contractor to consult with District personnel and configure authenticated and guest user access policies based upon role, time of day, length of usage, bandwidth allowance, etc.
- I. The system shall not interfere with or degrade the performance or disrupt the operation of similar wireless network systems operating in buildings, homes or facilities adjacent to Owner property.

### **3.4 INSTALLATION-AUTHENTICATION/ENCRYPTION**

- A. The District utilizes Windows 2003 with Active Directory. The District's existing wireless network infrastructure utilizes redundant Cisco ACS servers for authentication to Active Directory.
- B. Authentication/encryption shall be configured utilizing WPA2 with PEAP - MS-CHAPv2 and AES encryption.

### **3.5 TESTING**

- A. The following shall be tested and documented:
  - 1. Device density throughput requirements
  - 2. Single sign-on and authentication utilizing the existing Cisco ACS server
  - 3. Device roaming while maintaining authentication and security parameters
- B. The methodology and the tools used to perform tests shall be documented and delivered to the Owner.
- C. This contractor shall use District owned equipment for testing where possible to best simulate the results the Owner will experience.
- D. All test results shall be documented and delivered to the owner.
- E. The following performance specifications shall be tested and documented through post-installation surveys and management tools:
  - 1. Signal strength: -75dBm
  - 2. Signal to noise ratio: 20dB
  - 3. Building RF visualization
  - 4. Rogue access point detection, location and containment
  - 5. Device location awareness
  - 6. NAC identification, validation, policy enforcement, quarantine, and remediation

### **3.6 PROJECT RECORD DOCUMENTS**

- A. This Contractor must document all changes and additions to the Owner's network configuration including, but not limited to:
  - 1. VLAN assignments
  - 2. IP address assignments
  - 3. Final switch configurations
  - 4. Equipment passwords
  - 5. Changes to Active Directory including: groups, policies, security settings, user accounts
  - 6. IAS/RADIUS server settings and configuration
- B. Completely document the wireless network configuration and settings including controller(s), access points, SSID's, authentication, security, etc.
- C. Provide pre and post survey documentation.
- D. Document device density throughput test results.
- E. Refer to specifications section 16015 for additional general project record document requirements.

**END OF SECTION 16740**

## SECTION 16790 – TELEPHONE AND DATA COMMUNICATION SYSTEMS

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to work of this Section.
- B. Specification Section 16740 "Wireless Network Equipment".

#### 1.2 SUMMARY

- A. This Specification, in conjunction with the Drawings, establishes the requirements necessary to achieve the intended performance and function of the Telephone and Data Communications Systems (TDCS)
- B. The TDCS consists of telephone and data information storage, information processing, and/or information delivery and distribution equipment integrated together to form a cohesive integrated data communication system.
- C. Provide as part of the bid proposal a complete bill of materials, including catalog cuts and equipment configuration for each of the systems, i.e. telephone and data systems.
- D. Provide the services necessary to furnish, install, train, and to provide maintenance to support the TDCS including an integrated system of peripheral apparatus conforming to acceptable industry standards. All work shall be in accordance with the true intent of these Drawings and Specifications, and as required to leave the TDCS complete and in satisfactory operating condition, excluding those items listed under "Work by Others."
- E. The TDCS shall be comprised of new, existing to remain and existing to be relocated equipment that is of modern design, and current standard production of the manufacturer.
- F. Verify dimensions and conditions at the job site prior to installation, and perform installation in accordance with these Specifications, Manufacturers recommendations and the latest edition or revision of all applicable codes and standards.
- G. The TDCS includes providing, testing, removing, storing, reinstalling and integrating the following principal systems:
  - 1. Telephone Wiring
  - 2. Data Distribution Equipment
  - 3. Data Wiring
  - 4. LAN Hardware
  - 5. Power over Ethernet (POE) Devices
  - 6. Ethernet Switches
  - 7. Wireless Access Points
  - 8. Training
- H. Furnish and install a TDCS system incorporating the hardware, software, Ethernet LAN, and appropriate testing equipment to perform testing as hereinafter described.



- I. Furnish and install all system specialty back boxes. Standard electrical back boxes will be furnished by the Electrical Contractor.
- J. Deliver to the job site as directed by the Electrical Contractor, all back boxes which are to be installed under Division 16 of the electrical specifications under separate contract.
- K. Provide any additional items, not specifically mentioned herein, necessary to meet system requirements as specified, without claim for additional payment.

### **1.3 SYSTEM DESCRIPTION**

- A. The IAE Building is currently wired with category 5/5e cabling for data. In addition to the wired data network, the IAE Building will be configured for wireless network connectivity as part of this project. The IAE Building utilizes a traditional analog phone system for voice communications.

### **1.4 GUARANTEE, SERVICE AND TRAINING**

- A. All systems and components shall be guaranteed free of defects in materials and workmanship for a period of one (1) year from the date of acceptance or manufacturer's warranty, whichever is longer, and shall be repaired or replaced within twenty-four (24) hours following report of such defects by the Owner. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Architect/Engineer and the Owner.
- B. The TDCS Contractor, this includes the telephone and data communications system provider or his representative, shall be available on call and shall respond on site within four (4) hour notice, and without cost to the Owner, during the first twelve (12) months of full scale operation, following acceptance of the system, to assist the Owner and/or his representatives in any problems that may arise.

### **1.5 MAINTENANCE CONTRACT**

- A. Submit a maintenance and service contract with service rates for the TDCS covering all labor and materials necessary to repair damages to the system after the initial twelve (12) month guarantee. The contract shall include a differentiation between and definitions of "emergency" and "non-emergency" service with applicable rates for each.

### **1.6 SPARE PARTS**

- A. None required.

## **PART 2 - PRODUCTS**

### **2.1 GENERAL**

- A. Refer to specifications section 16015.

## 2.2 DATA SYSTEM

### A. Description of System:

1. The data system shall include providing a complete operational and tested data system. The data system will consist of providing new equipment, utilizing existing equipment and relocating existing equipment as they pertain to the following principle features:
  - a. Copper horizontal and patch cables
  - b. Copper patch panels
  - c. Media outlets and connectors
  - d. Ethernet switches
  - e. Wireless access points
  - f. Testing
  - g. Documentation
  - h. Training
2. This contract will consist of providing all of the necessary equipment and labor needed to maintain the existing TDCS, reuse existing TDCS equipment, and provide new TDCS equipment where required in accordance to the drawings and specifications. Where hardware or software upgrades are required to connect the backbone switch or LAN devices to the School District WAN, this contractor shall provide all necessary upgrades at no cost to the Owners.
3. This contractor is responsible for providing a complete and operational data system at the IAE Building. Provide the following principal items:
  - a. Provide new category 6 patch panels where required.
  - b. Provide new 2u wire management where required.
  - c. Provide new PoE Ethernet data switches where required.
  - d. Reuse and integrate existing Ethernet data switches.
  - e. Provide new Category 6 unshielded twisted pair cabling.
  - f. Provide new category 6 patch cables.
  - g. Tone, test, label and certify all new data drops at each end of the run.
  - h. Provide new data outlets.

### B. Products:

1. Horizontal Cable:
  - a. Data Cable Indoor: Blue, plenum rated, four (4) pair, 24 AWG, UTP, rated Category 6. Functionally equivalent to Berk-Tek Lanmark 1000 or Mohawk AdvanceNet.
  - b. Voice Cable Indoor: White or gray, plenum rated, four (4) pair, 24 AWG, UTP, rated Category 6. Functionally equivalent to Berk-Tek Lanmark 1000 or Mohawk AdvanceNet.
  - c. Approved Manufacturers:
    - 1) Uniprise
    - 2) Berk-Tek
    - 3) Hubbell
    - 4) Belden/CDT
    - 5) Mohawk

- 6) General
- 7) Panduit
- 8) Engineer approved equal

2. Copper Patch Cables:

- a. Category 6 compliant per EIA/TIA 568-B.
- b. Compliant per EIA/TIA 568-B and 606 for cable management and administration.
- c. Patch cables shall be color coded as follows:

1) Telecommunications Closet Patch Cables:

- |    |                     |        |
|----|---------------------|--------|
| a) | Servers             | Green  |
| b) | Administration VLAN | Red    |
| c) | Instructional VLAN  | Yellow |
| d) | Wireless VLAN       | Purple |
| e) | Voice               | Orange |
| f) | Cross-over          | White  |

2) Station Patch Cables:

- |    |                    |       |
|----|--------------------|-------|
| a) | Computers/printers | Black |
| b) | Phone handsets     | Black |

- d. Provide and install two (2) patch cables for each data run installed under this contract. One (1) patch cable at the station end point and one (1) patch cable in the telecommunications closet.
- e. Patch cables within the equipment closets shall be a minimum of three feet (3') in length and have a maximum of two feet (2') access coil length to avoid excess cable in the rack. The contractor shall install the cable to provide neat and organized patches to equipment. The contractor is required to review site conditions to ensure the proper cable lengths are installed in all District buildings.
- f. Patch cables for the wireless access points shall be plenum rated and fifteen feet (15') in length and secure with Velcro ties suitable for plenum environments to accommodate relocation of the access points as needed. Coil excess length to provide neat and organized patches of the access points.
- g. Approved Manufacturers:

- 1) Uniprise
- 2) Berk-Tek
- 3) Hubbell
- 4) Belden/CDT
- 5) Mohawk
- 6) General
- 7) Panduit
- 8) Superior Modular
- 9) Engineer approved equal

3. Media Outlets and Connectors:
  - a. For Data:
    - 1) Red, eight (8) position, eight (8) conductor, 110 IDC, modular snap-in jacks, certified Category 6, T568B jack pin assignment.
  - b. For Voice:
    - 1) Ivory, eight (8) position, eight (8) conductor, 110 IDC, modular snap-in jacks, certified Category 6, T568B jack pin assignment.
  - c. Faceplates shall be stainless steel of a size to accommodate the raceway and gang boxes identified on building drawings with adequate punch-outs for appropriate snap-in jacks.
  - d. Provide surface mounted boxes for RJ-45 jacks as required.
  - e. Where telephone and data outlets appear on the same faceplate, the telephone outlet shall be the top outlet and identified as telephone.
  - f. Approved manufacturers:
    - 1) Leviton
    - 2) Hubbell
    - 3) Ortronics
    - 4) Panduit
    - 5) Superior Modular
    - 6) Engineer approved equal
4. Cable Termination Equipment:
  - a. Horizontal Cable: Horizontal data cables will be terminated in the telecommunications closet on rack mounted, 48-port patch panels with 110 style termination block, rated Category 6.
    - 1) Patch panels will have a rear mounted strain relief bar to organize cables and maintain Category 6 bend radius.
    - 2) 2U Panduit horizontal wire manager shall be located above and below every 48-port patch panel. All horizontal wire managers shall be capable of front and rear cable management. All horizontal wire managers shall have front and rear removable covers.
5. Ethernet Switches:
  - a. The District's existing wired LAN/WAN is a star configuration with all buildings connected back to the Troy Services Building with a minimum of 1Gb on the fiber backbone.
  - b. One power over Ethernet (PoE) switch exists in each data closet at this building.
  - c. The District utilizes Cisco manufactured switches throughout its network.

- d. The data (computer) endpoints shall be patched to the District's existing unpowered Cisco 2948 switches.
- e. The wireless access points shall be patched to the District's existing and new powered Cisco 3750 and Cisco 3560 switches.
- f. Provide, install and configure the following:
  - 1) MDF:
    - a) One (1) Cisco 3560G-24PS 24-port 10/100/1000 MB PoE switch.

### **PART 3 - EXECUTION**

#### **3.1 GENERAL**

- A. This Contractor shall have a minimum of five years of experience in the specific application of the equipment proposed of these systems.
- B. All conductive communications cabling installed outdoors shall be properly grounded and bonded and lightning protected per the NEC®.
- C. All cables must be routed and managed for a neat and aesthetically pleasing appearance. All work must be installed in a neat and workman like manner.
- D. Communication bonding and grounding shall be in accordance with the NEC® and NFPA. Horizontal cables shall be grounded in compliance with ANSI/NFPA 70 and local requirements and practices. Horizontal equipment includes cross connect frames, patch panels and racks, active telecommunication equipment and test apparatus and equipment.
- E. The contractor shall not place any distribution cabling alongside power lines, or share the same conduit, channel or sleeve with electrical apparatus.
- F. The contractor shall provide any necessary screws, anchors, clamps, tie wraps, distribution rings, miscellaneous grounding and support hardware, etc., necessary to facilitate the installation of the system.
- G. It shall be the responsibility of the contractor to furnish any special installation equipment or tools necessary to properly complete the system. This may include, but is not limited to, tools for terminating cables, testing and splicing equipment for copper/fiber cables, communication devices, jack stands for cable reels, or cable wenchers.
- H. The contractor shall work carefully with all ceilings and return ceilings to original conditions. Any damages or expenses are the responsibility of the contractor. Every effort will be made to schedule the requirements under this Contract in such a manner so as to complete all above ceiling work prior to ceiling tile installation.
- I. The Drawings indicate cable type to be used. Further, the Drawings indicate a manufacturer's catalog number for reference of quality and functionality.
- J. Refer to specification section 16015 for additional general requirements.

#### **3.2 DEMOLITION**

- A. Coordinate demolition efforts with the general trades.

- B. Remove all low voltage cabling from its source to its endpoint.
- C. Include as part of your base bid price an allowance of twenty-four (24) hours for the abatement of miscellaneous cabling located within the ceiling space. These hours are above and beyond the labor required to perform the demolition as indicated in the Contract Documents.
- D. Refer to Specification Section 16015 for additional demolition requirements.

### **3.3 INSTALLATION – COPPER CABLING**

- A. Category 6 cables shall be continuous from MDF or IDF to media outlet and free from splices, reverses, grounds or other connections. Provide a 5-foot minimum service loop, above accessible ceiling, for each terminated cable, to accommodate future changes.
- B. Terminate Category 6 cable according to T568B jack pin assignments.
  - 1. Remove only the amount of cable jacket necessary for termination. Maintain wire twist for all pairs of Category 6 cable to within 0.5 inches maximum from termination point.
- C. Do not run cable longer than maximum 90 meter EIA/TIA recommended length.
- D. Copper splices in the horizontal distribution are prohibited.
- E. All cables installed in ceiling spaces shall be plenum-rated.
- F. Horizontal data cable pairs shall run from each jack to the MDF or IDF and terminate on category 6 patch panels.
- G. All cables shall be installed using "J" hooks, conduits, cable tray or an approved raceway system. Where cable tray is not available, horizontal cable will be supported every five feet with "J" hooks sufficient in size to handle all bundled cables while minimizing crushing. Copper and fiber optic cables will be divided into separate bundles and run in separate "J" hooks. If cable slack exceeds twelve (12) inches between supports, additional supports will be installed to take up slack and relieve cable stress.
- H. Carefully lay all cable with appropriate radius of curvature and protect at bends and corners. Observe minimum bend radius and tension limitations as specified by EIA/TIA for Category 6 and fiber optic cables.
- I. Loosely bundle cables with Velcro® ties, suitable for Plenum environments, every twenty feet.
- J. Patch panels shall be arranged to allow for natural wiring progression in functional fields, minimize crossing of wires and allow for the easy access to each component.
- K. The contractor shall assure that at the completion of cable installation, cables are free from twists, kinks, sharp bends, cuts, gouges or any other physical damage that might cause alterations to the electrical or optical characteristics of the cables.
- L. All entrance and intra-building cable penetration, conduit, cores, wall and ceiling penetrations will be sealed with a 3M type fire retardant. Refer to Section 07841 "Through Penetration Firestop Systems" for additional requirements.

### **3.4 LABELING**

- A. All cable designations and color-coding shall be in full compliance with EIA/TIA 606.
- B. Clearly label all cables, including patch cables at both ends with permanently applied mechanically printed labels. Hand written labels will not be acceptable. Use standardized colors and alphanumeric codes. All patch cables shall be numbered sequentially on both ends of the cable. Engineer will approve labeling system and method.
- C. In work areas, place cable ID labels around each cable in outlet box, on front of faceplate and on front of jack.
- D. In the MDF and IDF, place ID labels around each cable. Labels shall be located within six inches of the termination.
- E. Front label each patch panel port and faceplates with a mechanically produced identification label utilizing the Owner's existing labeling scheme:
  - 1. Typical: Closet No. – Room No. – Data Port (i.e. 2-300A-07)
  - 2. Wireless Access Point: Closet No. – Room No. – Data Port – "W" (i.e. 2-300A-07-W)

### **3.5 CATEGORY 6 (DATA) UTP CABLE TESTING.**

- A. The Contractor shall, at all times, permit and facilitate work inspection by the Owner's Representative and by public authorities having jurisdiction. The Owner's Representative shall have the authority to stop the work, if required, to insure proper execution.
- B. Each Category 6 UTP cable pair shall be tested end to end from the data outlet termination to the closet patch panel.
- C. Test shall be performed with connectors installed.
- D. Cable performance shall meet the standards outlined in EIA/TIA-568 A/Bus or minimum.
- E. Each cable shall be tested for infinite resistance between cables and ground.
- F. Tone, verify and certify cable and jack/connectors as free from shorted pairs, open pairs, reversed pairs, crossed pairs and grounded pairs. One hundred percent of all pairs must be in good working condition.
- G. Check cable length and labeling at both ends.
- H. Cables and connectors comprising Category 6 must be certified compliant with the performance requirements listed in EIA TSB36 (cables) and TSB40 (connectors).
  - 1. As a minimum, test documentation will include:
    - a. Cable Identification Number
    - b. Worst Case Near End Cross Talk (NEXT)
    - c. Attenuation
    - d. PSNEXT
    - e. Return Loss

- f. PSELFEXT
  - g. Signal-to-Noise Ratio
  - h. Ambient Noise
  - i. Loop Resistance
  - j. Equal Level Far-End Crosstalk (EL-FEXT)
  - k. Return Loss
  - l. Propagation Delay
  - m. Propagation Delay Skew
  - n. Cable Length
  - o. Test Date
2. Each data circuit, including all connectors shall be tested to verify all bandwidth performance and crosstalk specifications as outlined Category 6. Any cables not in one hundred percent compliance with the minimum performance criteria relating to Category 6 will be replaced with no additional cost to Owner.
- I. Cable testing will be conducted by a programmable micro-computer based tester capable of testing all specific standard requirements and generating completed printed test results.
    1. Test equipment shall be a Microtest, Fluke, or approved equivalent. Equipment will be designed, and of such grade, so as to provide reliable certification and testing.
  - J. A detailed copy of all test reports shall be provided to the Owner in CD format. Additionally, this contractor shall provide hardcopy documentation indicating cable length and the pass/fail test results for each Category 6 cable installed.
  - K. Any outlet, cable or component that does not meet the required operational tests or fails to meet installation standards as specified shall be repaired or replaced by the contractor as directed by the Owner and at no expense to the Owner.

### **3.6 PROJECT RECORD DOCUMENTS**

- A. Fully detailed documentation and record drawings of installation layout and performance shall be submitted for review within thirty (30) days of completion of work and shall include as a minimum:
  1. Marked drawings showing distance and routing of all inside cable with gauge, type and numbering scheme.
  2. Location of outlets with their identification number prepared on most recent installation drawing.
  3. Drawings showing distribution frame layouts, cross connect locations, cable routing from rooms.
  4. Drawings showing layout of panels and equipment in cabinets.
  5. Drawings shall accurately record actual locations of each item of fixed equipment, and show interconnecting wiring. Drawings will indicate location of equipment and tagged circuits. A functional block diagram will also be required.



B. Documentation Requirements

1. Drawings, whenever submitted, shall be submitted with three (3) copies to the Owner.
2. Cable and outlet identification, locations, performance and test results will be entered into Excel or approved PC based spreadsheet. The Contractor spreadsheet template and format will be approved by the Owner.
3. Final record drawings shall be submitted as one (1) ANSI C color laminated drawing, two (2) sets of scaled 20# bond drawings and two (2) CD-ROM in PDF format. Drawings shall be professionally done. Hand drawings and notations will not be accepted.

C. Cable Record Book

1. The Contractor shall prepare and deliver complete and accurate cable records entered into Excel or approved PC based spreadsheet. Minimum information to be included for each cable in the Cable Record Book is:
  - a. Location (room number)
  - b. Jack Number
  - c. Serving Closet
  - d. Patch Panel Number
  - e. Patch Panel Port
  - f. Cable Type and Use (Cat 6, voice)

D. Refer to specifications section 16015 for additional general project record document requirements.

E. All drawings and the information contained therein become the sole property of the Owner.

**END OF SECTION 16790**

**SECTION 16795 – VOICE AND VIDEO COMMUNICATION SYSTEMS**

**PART 1 - GENERAL**

**1.1 RELATED DOCUMENTS**

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

**1.2 SUMMARY OF WORK**

- A. This Specification, in conjunction with the Drawings, establishes the requirements necessary to achieve the intended performance and function of the Voice and Video Communications Systems (VVCS)
- B. The VVCS shall consist of a Dukane multimedia retrieval system with voice, video information storage, information processing, and/or information delivery and distribution equipment integrated together to form a cohesive integrated communication system. This project shall restore the existing building headend and control systems and modify the components and wiring to accommodate the building renovations.
- C. Provide as part of the bid proposal a complete bill of materials, including catalog cuts and equipment configuration for each of the systems, i.e. voice and video systems.
- D. Provide the services necessary to disconnect, remove and reinstall and/or furnish and install new, in accordance with the drawings and specifications all product required to support the VVCS including an integrated system of peripheral apparatus conforming to acceptable industry standards.
- E. Provide the services necessary to transport, load, install and integrate Dukane media retrieval software on district-provided computer hardware and peripherals, in adherence with Dukane manufacturer standards. All work shall be in accordance with the true intent of these Specifications, and as required to leave the VVCS complete and in satisfactory operating condition.
- F. Verify dimensions and conditions at the job site prior to installation, and perform installation in accordance with these Specifications, Manufacturers recommendations and the latest edition or revision of all applicable codes and standards.
- G. The VVCS includes, but is not limited to, providing, integrating and relocating the following:
  - 1. International Academy East:
    - a. Dukane database, Dukane building router, VGM, clock and bulletin board computers and associated peripherals.
    - b. Furnish and install (or reuse existing) equipment rack mounting hardware, including shelves, bezels and blank inserts required for a complete and finished appearance.
    - c. Coordination with district personnel to obtain all relevant information to install equipment.
    - d. Coordination with District personnel to ship computer equipment and associated peripherals to the media retrieval manufacturer for software integration.

- e. Coordination with District personnel to deliver integrated computer equipment and associated peripherals to the location or locations designated by the District.
  - f. Unpacking and assembly of the Dukane database server, Dukane building router and VGM computer workstations and associated peripherals into building racks.
  - g. Installation and integration of all audio and video interfaces.
  - h. Installation of Dukane Media Retrieval, VGM, clock and PowerPoint software on District provided computers.
  - i. Installation of District-provided database image on Dukane database server.
  - j. Synchronization of Dukane database router database.
  - k. Integration testing to ensure Dukane media retrieval system operates with the computers provided by the District.
  - l. Reinstall TV's with proper TV mounting brackets, set-top boxes, interconnect cables and test for operation after installation.
  - m. Provide dual arm wall mount TV brackets for all relocated TV's 30" and larger unless otherwise noted on the drawings.
  - n. Reinstall speakers, speaker grilles, speaker back boxes and test speakers after installation.
  - o. Reinstall and test CCP's.
  - p. Provide and install new or reinstall existing relocated ceiling mounted projectors, mounts and cabling.
  - q. Remove all abandoned video cable, paging cable, broadband cable, video control cable, hardline cable, taps, splitters complete.
  - r. Provide new 1/2 inch RF hardline, new combiners, new splitters, new taps, new RG69U cables, drop cables, amplifiers, connectors complete for areas requiring new RF broadband cabling or areas being renovated.
  - s. Rebalance and tune the RF broadband system in the building.
  - t. Provide CCP backboxes to the electrical contractor for all relocated CCP's. Refer to Drawings to determine mounting type for CCP's.
  - u. Work with the CM and other trades to coordinate the installation of the projects in phases as defined by the CM.
2. Services Building:
- a. Provide and install all new video electronics, Dukane CCM, hardware, materials, and miscellaneous equipment required to integrate the International Academy East facility into the revised building line-up.
  - b. Connection of new International Academy East video equipment to the existing fiber optic network.
  - c. Integration of International Academy East into the existing District-wide Dukane network as a new facility.
- H. Furnish and install equipment in accordance with the drawings and specifications all the necessary equipment required to restore the VVCS system incorporating the CPU, software, digital displays, clock/calendar/messaging, video all-call, media retrieval, emergency messaging, RF distribution, local video origination, electronic bulletin board, manual override panel, background music center, diagnostic analyzer circuit with inputs for local and remote annunciation, enhanced sound and audio retrieval, classroom control panels, TV AC controller, fan cooling controller for terminal equipment, and appropriate testing equipment to perform testing as hereinafter described.
- I. Furnish to the electrical contractor all system specialty back boxes. Standard electrical back boxes will be furnished by the Electrical Contractor.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

- J. Deliver to the job site as directed by the Electrical Contractor, all back boxes which are to be installed under Division 16 of the electrical specifications under separate contract.
- K. Provide any additional items, not specifically mentioned herein, necessary to meet system requirements as specified, without claim for additional payment. Such items may include hardware, transformers, line/distribution amplifiers and other devices for proper installation, interface, isolation or gain.

### **1.3 GUARANTEE, SERVICE AND TRAINING**

- A. All new systems and components shall be guaranteed free of defects in materials and workmanship for a period of one (1) year from the date of acceptance and shall be repaired or replaced within twenty-four (24) hours following report of such defects by the Owner. The date of acceptance shall be defined as the date the Certificate of Substantial Completion shall be signed by the Architect/Engineer and the Owner.
- B. The labor for all relocated systems and components shall be guaranteed free of defects in workmanship for a period of one (1) year from the date of acceptance and shall be corrected within twenty-four (24) hours following report of such defects by the Owner. The date of acceptance shall be defined as the date the Certificate of Substantial Completion shall be signed by the Architect/Engineer and the Owner.
- C. The VVCS System Contractor shall be available on call and shall respond on site within four (4) hour notice, and without cost to the Owner, during the first twelve (12) months of full scale operation, following acceptance of the system, to assist the Owner and/or his representatives in any problems that may arise during the initial period of operation.

## **PART 2 - PRODUCTS**

### **2.1 MEDIA RETRIEVAL EQUIPMENT**

- A. The district will provide a total quantity of four (4) computers to the Contractor for software integration at the manufacturer's facility. The base specification of the computer equipment is as follows:
  - 1. Intel Pentium 4 Processor, minimum of 3.4 GHz, 800 MHz Front Side Bus with Hyper-Threading technology with most current Manufacturer BIOS level
  - 2. 1 GB DDR2 Non-ECC SDRAM, minimum 400 MHz, two 512 MB DIMM modules, leaving a minimum of two DIMM slots available
  - 3. 160 GB Serial ATA hard drive, 7200 RPM, non-RAID
  - 4. Integrated 10/100/1000 network adapter, capable of ACPI "Wake on LAN"
  - 5. 16X DVD+/-RW optical drive
  - 6. USB 101+ key keyboard
  - 7. Two-button optical mouse with integrated scroll button
  - 8. Two front-side accessible USB ports, five rear-side accessible USB ports
  - 9. Front-side accessible stereo 1/8-inch headphone jack, easily accessible to the end user
  - 10. Small form factor, lockable chassis
  - 11. Energy Star compliant computer and video chassis
- 12. PCIE 16X Video adapter, providing the following minimum characteristics:

- a. ATI® Radeon™ X300 Pro 256-bit 3D Graphics Accelerator or better
  - b. 400MHz 128-bit DDR memory interface
  - c. PCI Express bus architecture
  - d. Integrated TV Output support up to 1024x768 resolution
  - e. S-Video out and DVI connectivity
13. Integrated "AC-97" Audio with integrated internal audio speakers
  14. 17-inch, Active Matrix TFT Flat Panel display, minimum supported resolution 1280x1024, VGA and DVI connectors
  15. Microsoft Windows XP Professional, with all current Microsoft service packs applied
  16. all cables, including a power cord
  17. One (1) serial port adapters. Serial port adapters will be compatible with the computer motherboard and chipset BIOS, and provide two COM ports with DB9-type connectors.

## 2.2 APPROVED MANUFACTURERS

- A. Subject to compliance with requirements, Contractor will provide hardware and software integration and installation utilizing hardware and software provided by:
  1. Media Retrieval System
    - a. Dukane Communications Systems

## 2.3 MULTIMEDIA HEADEND EQUIPMENT

- A. The restored VVCS system headend shall contain the voice, video, and data source and control equipment located in 19 inch wide audio racks located in the main MDF room.
- B. Where spare or space positions are indicated on the Drawings or result from relocation or rearrangement of components within the headend equipment rack provide blank cover plates on the front of the racks of the size required to accommodate the future equipment indicated. Where no equipment is indicated and space exists, provide blank cover plates in combination of units 1-3/4", 3-1/2", 5-1/4" and 7" high.
- C. All headend equipment shall be rack mountable. Shelf type mounting will not be permitted.
- D. The headend shall consist of the following principal devices:
  1. Multimedia central processing unit for control of the following:
    - a. Bell Scheduler.
    - b. Bell Tones.
    - c. Clock functions.
    - d. Emergency alert annunciation.
    - e. AC power control for TV sets.
    - f. Media scheduling.

2. Video central processing equipment for control of the following:
  - a. Video media retrieval.
  - b. Modulators.
  - c. Demodulators.
  - d. Combining networks.
  - e. VCR's.
  - f. Laser discs.
  - g. Digital Versatile Disc (DVD).
  - h. Electronic bulletin board.
  - i. Clock and message board.
  - j. Compact disk interactive (CDI).
  - k. C and KU satellite receiver (provisions only).
  - l. Residential cable network (R-NET) demodulators
  - m. Institutional cable network (I-NET) demodulators (Provisions only)
  - n. Distance learning (Provisions only)
  - o. CD-Rom Via wireless mouse/keyboard.
  
3. Voice central processing equipment for control of the following:
  - a. Public Address System.
  - b. Intercom.
  - c. Audio Retrieval
  - d. Background Music.

## **2.4 VIDEO MEDIA RETRIEVAL SYSTEM**

- A. The restored Video Retrieval System shall provide a television interface to allow the remote access and operation, infrared control of the quantity of VCR's, compact disks interactive, video still players/recorders, DVD's RNET stations, INET stations, shown on the Drawings and located at the head-end equipment.
  
- B. The restored system shall have the minimum capacity of simultaneously accessing and controlling and distributing RF signals for one hundred twenty-five (125) media sources (1 GHz). The system shall be designed for adjacent channel operation.
  
- C. Various functions and features shall be programmed into the interface, using the system computer.
  
- D. The VCR functions that shall be controlled remotely via infrared and computer keyboard are:
  1. Play
  2. Pause
  3. Rewind
  4. Stop
  5. Fast Forward
  6. Scan Forward
  7. Scan Reverse
  8. ON-SCREEN Analog and Digital Reference Displays
  9. Tracking +/-
  10. Record (only for selected VCR's)

- E. Access and retrieval shall continue to be accomplished by infrared controller.
- F. The teacher shall continue to have the ability of controlling all machine operating modes from their location, using the handheld infrared remote controller.
- G. All equipment presently is and shall be rack mountable. Under no circumstances will shelf type mounting or "reaching in" configuration be acceptable.
- H. System is presently and shall continue to be designed using acceptable CATV tapoff standards - "Home Run" or loop installations will not be acceptable. Where loop or homerun type installations are required by the approved manufacturers, it shall be so stated in the bid proposal.
- I. The system presently is and shall continue to be fully capable of simultaneous bi-directional use utilizing the same sending cable (s) from any classroom or any location where an RF outlet is provided.
- J. The system presently is and shall continue to be capable of receiving and transmitting any signal from a standard off-air antenna, satellite transponder, cable company input, local origination and in-house media retrieval.
- K. The installation presently complies and shall continue to meet all local cable television company and FCC requirements for signal leakage. (See System Testing Section for testing requirements and test equipment to be supplied by the successful Bidder). The system shall comply with FCC Radiation, Leakage and Aeronautical Standards. Test all locations in existing buildings in the scope of work including areas where this Contractor is not performing any work.
- L. Signal level at every outlet shall be five (+5 dB) plus or minus two (2) dB between adjacent channels. Test all outlets in the buildings where this Contractor is working.
- M. This Contractor shall contact the cable company and pay for any charges to increase the cable company signal strength.

## **2.5 MULTIMEDIA CENTRAL PROCESSING UNITS (MCPU) - GENERAL**

- A. The MCPU shall be comprised of a number of computers all integrated to operate as one (1) multimedia central processing unit.
- B. The following computers shall be located in the main headend (MDF) and are designed to perform the following functions:
  - 1. Computer No. 1 (Scheduler):
    - a. Media Scheduling
    - b. Media Inventory List
    - c. Video Zone Paging Schedules
    - d. Video All Call
    - e. Video All Call with Audio All Call
    - f. Media and Source Equipment Usage (status reports)
    - g. AC control of classroom television sets, on/off functions for all alarms, and energy management functions for all CPCC equipment

2. Computer No. 2 (Clock/Messaging):
  - a. Master clock programming
  - b. All clock functions
  - c. All calendar functions
  - d. On screen messaging
  - e. All fire drill functions
  - f. All emergency weather alert functions
  - g. All video bell functions
  - h. Multi-zone bell functions
  - i. Bell ring duration's
  - j. Auxiliary bell schedules.

3. Computer No. 3 (Bulletin Board):
  - a. Electronic bulletin board displays
  - b. Electronic bulletin board page sequences
  - c. Electronic bulletin board display intervals
  - d. Picture identification and recognition system
  - e. Bulletin board with still and full motion video displays

4. Computer No. 4 (Paging):
  - a. P.A. zoning paging

- C. Computer No. 1, the media scheduling computer and computer No. 2 the clock/messaging computer are mounted in the headend rack and share a common keyboard and monitor. The keyboard and monitor are selectable via an "A/B" selector switch mounted in the rack.
- D. Computer No. 3, the bulletin board computer, is provided with its own keyboard and monitor and is located on a desk in the headend room.

## **2.6 SCHEDULING COMPUTER (SC)**

- A. Scheduling shall be performed at the Multimedia Central Processing Unit (MCPU) Scheduling Computer (SC) (Computer No. 1) or remotely programmed by an off-site compatible computer with a modem, or remotely programmed by a computer connected to the school LAN.
- B. The Scheduling Computer controls all programmable functions.
- C. The SC controls the turning on/off of power, to all TV sets in the system
- D. The SC shall be capable of generating full alpha-numeric messages to each classroom. Messages appear at each classroom control module (set top box) or as video text data displayed on the classroom TV/receiver. Messages can be tailored for each classroom, a group of classrooms, or all classrooms.



- E. The SC scheduling/control software shall be available to all classroom computers connected to a local area network (LAN) through proper password authorization. To prevent contention for media sources, any and all classroom scheduling shall be considered as a "request for use". Final acknowledgment and assignment shall be accomplished via the SC by the media specialist through proper password access at any PC. At this time, the SC shall transmit a "source ready" message to the appropriate instructor.
- F. The SC shall allow all or user selected media titles, broadcast channels, sources to be assigned as "global sources" for access on demand. In this mode, scheduling shall not be required for classroom access. Global sources shall be retrieved on first-in first-out basis. The SC shall automatically prevent (via software) other classrooms from controlling a source "in use" but not prohibiting the viewing of a source in use. The SC shall automatically create a list of resources available on demand to be displayed as a video text display selected by classroom instructors.
- G. The SC shall allow scheduling of off-air recording sessions or secondary off-media sources of local origination for video and audio.
- H. The system shall allow the sharing of resources across multiple schools. All schools share a single database with 10 global sources across the system. Each school has its own communications router to handle its local clients, set top boxes, SCM's, and TAM's.
- I. The database server and network client software communicate using sockets on top of the TCP-IP protocol stack. The database server software provides graphical user interface (GUI) screens on the provided monitor.
- J. The SC and Scheduling Control Processor shall be a Dukane Model DSS2100 or engineer approved equal.

## **2.7 CLOCK/CALENDAR/MESSAGING COMPUTER**

- A. The clock, calendar, and messaging function are performed at the MCPU by the Clock/Calendar/Messaging computer (Computer No. 2).
- B. The clock/calendar shall be controlled by an internal battery backed clock/calendar board internal to the computer.
- C. The output of the computer no. 2 is to be connected to a modulator in the headend for broadcast on the television program distribution system. The modulator is to be connected to a music channel through a computer music #1, music #2 on/off selector switch to simultaneously broadcast audio and video on the clock channel.
- D. The music selector switch shall be mounted below the monitor and labeled "Clock/Calendar/Messaging Computer Channel Music Channel 1 or 2 Selector".

## **2.8 ELECTRONIC BULLETIN BOARD SYSTEM**

- A. A separate Bulletin Board computer (Computer No. 3) and associated software shall be provided to generate video text announcements for the distribution of messages and announcements to video displays school wide via the Video Program Distribution System.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

- B. The output of the Bulletin Board computer shall be connected to a modulator in the head-end for broadcast on the Television Program Distribution System. The modulator is connected to a music channel through a computer Music #1/Music #2/off selector switch to simultaneously broadcast music and video on the Bulletin Board channel.

**2.9 ALPHA NUMERIC DIGITAL CLOCK/FIRE/WEATHER (WTHR)/MESSAGE WAITING (MSG)/ BELL DISPLAY (EXISTING SYSTEM)**

- A. Where equipment is relocated and/or reinstalled provide a connection the VVCS to provide Digital "Time/FIRE/WTHR/MSG/BELL" Display on the TV set top boxes (classroom control modules) (CCM), and other selected areas
- B. Each display function shall continue to be powered from the MCPU, as well as be provided a serial data stream to continuously update its display.
- C. Each unit shall continue to indicate both hours and minutes on 2.5 inch LED fully populated displays in classrooms and 5-3/4" LED fully populated displays in all other areas.
- D. The CCM clock shall continue to have a count-up countdown timer function operated by the infrared remote control or via pushbutton in the classroom control panel.
- E. The controlled time base for each unit shall originate from the Master Clock.
- F. As an adjunct to the existing Fire Alarm system, when the Fire Alarm System is activated or the fire "TEST" button is activated, it shall seize control of all TV channels and continuously flash the word "FIRE" on the alpha numeric displays as well as sound a prerecorded message over the Public Address and shall flash the word "FIRE" on the TV's.
- G. When the Weather Alert button is activated or the Weather "TEST" button is activated, the alpha numeric display will flash in capital letters the abbreviated word "WTHR" to alert personnel to an emergency and shall seize control of all TV channels and continuously flash the words "WEATHER ALERT" on the TV's.
- H. When the All-Clear is sounded, the display will revert to normal clock functions and all programming shall resume on TV channel without the need for the classroom teacher or anyone else having to change channels back to their pre-empted channel.
- I. When the Bell Annunciator is activated or the bell "Test" button is activated, the alpha numeric display shall display the word "BELL" and shall seize control of all TV channels and continuously flash the word "BELL" as well as sound a distinctive sound over the Public Address.
- J. When the Bell System is deactivated, the alpha numeric display shall revert to the normal clock functions and all TV programming shall resume on channel without the need for the classroom teacher or anyone else having to change channels back to their pre-empted channel.
- K. Reinstall or provide new single face or double face clocks as indicated on the Drawings. Clock letters shall be 5-3/4" high minimum.
- L. Approved Manufacturers or Engineer Approved Equal: Where speaker/clock combination units exist in offices area and they are indicated to be replaced with speaker/clock combination units, replace them with combination 8" speaker and 2" LED clock units.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27  
Description

<u>Manufacturer</u>	<u>Model Number</u>	<u>Description</u>
Dukane	710-3092	2" LED Display with Speakers
Digital Display Systems	BSA41225 ACSW	2.5" LED Display-Single Face
Digital Display Systems	BSA41260 ACSW	5-3/4" LED Display-Single Face
Digital Display Systems	BSA41260-2 ACSW	5-3/4" LED Display-Double Face

## 2.10 BELLS

- A. The bells shall be controlled by the clock/calendar/messaging computer (Computer No. 2) from the set up menu.
- B. Bells take precedence over audio announcements and will be overridden by the emergency messages.
- C. Bells shall be capable of, but not limited to:
  - 1. Being operated locally at the head-end, via an external compatible computer operating on the school LAN, or by an external computer using a modem.
  - 2. Shall utilize the same Master Clock used by the Clock/Calendar.
  - 3. Automatically or manually distribute class change signals to both the audio, on the clock channel, and the All-Call Video, and All-Call Public Address System.
  - 4. Bell scheduling requires only a single time, zone and code entry, to the programming menu.
  - 5. The software automatically accommodates for daylight savings time when the time and zone are entered.
  - 6. Where TV's are "on" the word "Bell" will be distributed to the TV's for the duration of the audio signal via the all call function. Where TV's are "off" the TV shall remain off.
  - 7. The dismissal system uses the speaker/voice system.

## 2.11 LOCAL VIDEO ORIGINATION

- A. The restored system shall allow broadcast of live video or prerecorded video from any source device that produces a NTSC video format connected to any RF outlet located throughout the facility to any and all other RF outlets. The originating video is broadcasted to the head-end via a subchannel reverse signal by inserting a frequency agile subchannel modulator between the source device and the RF outlet.

## 2.12 VIDEO ALL-CALL

- A. The Video All-Call shall be provided to permit "live" broadcasts to all television sets, connected to the system, by administrators, designated personnel and/or invited guest speakers.
- B. The video all-call function shall be initiated by dialing a predetermined telephone number or via an infrared paging transmitter that will activate the all call from any set top box or via computer command.
- C. When the video all-call is activated, all VCR's, DVD's, and similar source devices shall be automatically switched to the "pause" status for the duration of the all-call.

- D. The TV's presently are and shall continue to be automatically switched to the predetermined channel for the video all-call or the modulators shall all switch to the predetermined channel for video all-calls. TV's which were in the "off" mode shall be automatically turned "on" for the duration of the video all-call. At the conclusion of the video all-call, the TV's which were originally "off" will be turned "off" automatically and TV's which were "on" will remain "on" and will return automatically to their pre-video all-call channel.
- E. At the conclusion of any broadcast, hanging up the telephone or entering a one-digit "concluded" code on the paging transmitter or via computer command shall automatically return all programming to pre-empted TV channels without it being necessary for the teacher or any other person to readjust the TV's. Reactivation of the VCR's and laser disks shall be by instructor's command.

### **2.13 ADDRESSABLE TV SET TOP BOX (EXISTING SYSTEM)**

- A. The TV set top boxes are presently located in the classrooms and are capable of controlling the classroom television set or video monitor and all remote media sources, including bar code wand type readers. (Each TV has been provided with a set top box).
- B. This Contractor shall reinstall the set top boxes as indicated on the drawings.
- C. The set top box accepts and shall continue to accept commands from the handheld infrared remote control unit or the Classroom Computer or wand type bar code readers supplied with the laser discs for control of remote media source equipment. The set top box transmits those commands through the data port to the media control network.
- D. The set top box, through the media control network is capable and shall continue to be capable of accessing and controlling CATV receivers, satellite receivers, VCR's, laser discs, computers, DVD's, CD-I's, CD-Rom, slide projectors, 16mm projectors and personal computers.
- E. The set top box provides and shall continue to provide infrared control of the local video monitor or television screen only, allow the user to turn it on and off and control volume/mute/stereo/mono left/mono right where applicable. The set top box is capable of either learning universal infrared commands or of having the infrared command set downloaded from the SC. All infrared command set information is stored in non-volatile memory.
- F. The set top box is equipped and shall continue to be equipped with an RS-232 port for use with a local PC or intelligent keyboard. The RS-232 port shall allow the user to connect a personal computer or an intelligent keyboard to the set top box and control the classroom monitor as well as any scheduled or global media source. This port shall allow each instructor to generate lesson plans from any classroom computer. The set top box is capable of providing a TSR program which will emulate all infrared control functions from either an Apple or IBM computer. This shall allow each instructor to control and digitally record (on hard drive) individual lesson plans. The instructor is capable of presenting and controlling the lesson plan from the classroom computer. The set top box also provides a second RS-232 port for Level III laser disc control.
- G. The set top box displays and shall continue to display visual confirmation of user commands on a 1-inch high, six character 5 x 7 LED dot-matrix display. The command confirmation is displayed on the set top box for three seconds. The set top box also displays the source identification of the media source currently displayed on the monitor. Display of user commands will be permitted to be displayed via video text on the TV receiver in lieu of on the set top box. When the

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

television/monitor is turned off, the set top box displays the time of day unless a separate digital clock/timer/display unit is provided. The SC shall synchronize the set top box internal clock.

- H. The set top box is capable and shall continue to be capable of allowing users to view and change (subject to SC permission) media sources which are either scheduled or global for that classroom. Users are able to view the room menu generated by the SC either via the set top box or on screen video text.
- I. The set top box provides and shall continue to provide channel blocking (broadband only) of any or all channels to prevent the user from switching to a channel, which has not been scheduled for the classroom. The set top box unblocks specific channels upon authorization from the SC.
- J. The set top box provides and shall continue to provide a means of confirming that the set top box is aware of classroom television set or monitor power on/off status by sensing the electromagnetic field generated by the television set or monitor CRT yoke.
- K. The set top box is capable and shall continue to be capable of accepting a command from the SC to turn the video monitor or television set on or off, mute or set the volume to a programmed level, and change the television channel before and during video paging.
- L. The set top box switches and shall continue to switch to a default channel (broadband) upon power up to display the room menu or for video paging. The room menu is accessible by the user at any time.
- M. The set top boxes presently contain and shall continue to contain a firmware application allowing a terminal to control its ability to learn the infrared command sets for the TV/monitor installed in the classroom.
- N. The set top boxes presently and shall continue to recognize a sufficient quantity of push buttons to provide the commands necessary to control media source equipment.
- O. The set top boxes presently provide and shall continue to provide I/O matrix for interfacing to intercom, security and clock systems.
- P. The set top boxes are presently capable and shall continue to be capable of interfacing to laser disc with bar code reader. This is an integral software feature and shall not require external hardware.
- Q. The set top boxes provide and shall continue to provide an elapsed timer function for both count-down and count-up functions. The start and stop time is programmed via the infrared remote control unit.
- R. All set top boxes display and shall continue to display the correct time on a six (6) character LED matrix display even when the room TV/monitor is off.
- S. The set top boxes are Dukane Model DSS2500.

**2.14 HANDHELD INFRARED (IR) REMOTE CONTROL UNIT (EXISTING SYSTEM)**

- A. The existing handheld IR remote control unit shall allow the user to access all local and remote features herewithin specified.
- B. The existing handheld IR remote control units have a range of at least 40 feet in all ambient lighting (100 foot candles) conditions suitable for media viewing. The units are capable of transmitting IR signals at a frequency of at least 400khz to avoid interference by electronic ballasts operating in the 40-300 Khz band.
- C. The existing handheld IR remote control units are capable of controlling up to eight different scheduled sources simultaneously, including TV's, VCR's, receivers, compact disc players, CD-I, CD-ROM, laser disc, DVD CATV converters, audio volume, music channel #1 Music Channel #2, count-up, count-down timer, etc. through the set top box.
- D. The existing handheld IR remote control units contain a sufficient quantity of push buttons to provide all the commands provided by the manufacturer with his remote control IR unit for each type of source equipment.
- E. The existing handheld IR remote control provides additional push buttons for auxiliary functions.
- F. The existing handheld IR control units are Dukane Model DSS2510.

**2.15 MODULE CONCENTRATORS (DIGITAL CONTROL NETWORK) (EXISTING SYSTEM)**

- A. The existing system employs a digital control network for all system operation. The system operates via either of the following methods:
  - 1. A system microprocessor, M68340 or better, to manage data communications and event operations over an addressable LAN control network to communicate from classroom set top boxes and classroom computers to the head end controllers.
  - 2. A module concentrator consisting of a single unit containing 16 communication ports for classroom device control. Two additional RS-422 ports shall be provided for communication with a host adapter board installed in the Scheduling Control Computer (SC) and communication with other module concentrators. It shall be possible to group multiple concentrators to control set top boxes by connecting the concentrators in daisy-chain fashion. One of the concentrators in the group shall be connected to the host adapter board in the SC to provide control for the entire group. All connections between the host adapter boards and module concentrators shall be through RS-422 compliant cabling using two twisted pairs, terminated on an RJ45 connector. Each module concentrator shall include a processor to reduce CPU overhead for the 80486 processor on the host adapter card.
- B. In either approach, the processor shall manage events independently from the SC. If the SC is off, or disconnected, the events shall continue to function until control is re-established from the SC.
- C. The module concentrator is a Dukane Model DSS2150.

## **2.16 INFRARED SOURCE CONTROLLERS (I-SC) (EXISTING SYSTEM)**

- A. The infrared source controllers (I-SC) provides the infrared emitter signals required for the remote control of the audio/video media sources that are located in the head-end room away from the classroom.
- B. Each I-SC is equipped with infrared emitter outputs for control of media sources and be programmable for control of up to the number of media sources connected to it. Each infrared output is capable of providing a full array of media source remote control, including key functions that require auto-repeat commands. The I-SC is capable of controlling various media source devices mixed among the infrared outputs so that one I-SC can control a VCR, a laser disc player, a compact disc player, a CD-I player, a stereo receiver, and/or any other infrared remote controlled device in any combination. The IR controller and handheld IR unit contains all functions found on the IR controllers provided by the source equipment suppliers. This is accomplished without any usage restrictions (i.e., blocking of sources).
- C. The I-SC is capable of learning its programming directly from the media source's handheld infrared remote control unit or the programming can be downloaded from the SC. The I-SC contains a firmware mode allowing a terminal to be connected to the I-SC serial port and control the I-SC's ability to learn infrared command sets.
- D. The infrared source control module is Dukane Model DSS2400.

## **2.17 SERIAL SOURCE CONTROLLERS (S-SC) (EXISTING)**

- A. The serial source controllers (S-SC) provides the serial signals (RS232/422) required for the remote control of the audio/video media sources via personal computers and computer terminals that are located in a central media room away from the classroom but connected to the School LAN.
- B. The S-SC is equipped with four serial outputs for control of media sources and is programmable for control of up to four media sources. Each serial output is capable of providing a full array of media source remote control. The S-SC is capable of controlling various media source devices mixed among the serial outputs so that one S-SC can control a laser disc player with bar code reader, a CD-ROM player, a computer, and/or any other serially-controlled device.
- C. The S-SC is capable of receiving its command set programming by downloading from the SC or laptop PC.
- D. The serial source control module is a Dukane Model DSS2410.

## **2.18 MANUAL OVERRIDE PANEL (EXISTING)**

- A. The system includes a manual override of automated functions:
  - 1. Public Address.
  - 2. Zoning.
  - 3. Fire Monitoring Alarm Activation.
  - 4. Bells.
  - 5. Weather Alert (WTHR).
  - 6. Turn Power On/Off to TV.
  - 7. Background Music.

8. All-Clear.

## **2.19 CLASSROOM CONTROL PANEL (CCP) (EXISTING SYSTEM)**

- A. The CCP houses the telephone, local audio broadcast system, video outlets, audio outlets, selector switches, storage compartment and other outlets as specified on the drawings.
- B. The reinforcement of the audio portion of retrieved program is provided by and shall continue to be provided by an individual amplified sound system in the CCP. CCP's allow and shall continue to allow incoming telephone to be transferred to the amplifier for broadcast permitting guest lecturers to address the entire class. Each classroom is presently equipped with a CCP including selected other spaces. This contractor shall protect each CCP in spaces where the CCP is not indicated to be removed to accommodate minor room renovations such as painting, new ceiling, new flooring, new markerboards, new glazing, etc. Remove the protective covering after the renovation and clean the CCP's. This Contractor shall disconnect, remove and store CCP's as indicated on the drawings. The CCP's shall be stored in a secured, temperature controlled environment off site. Where CCP's are damaged as a result of the storage process, this Contractor shall provide new CCP's to match existing.
- C. The existing system includes a five (5) watt solid state amplifier with associated volume control, necessary control circuitry, and all hybrid interfaces as required to:
  - 1. Control the overall volume in the room by regulating the signal level within the amplifier.
  - 2. Permit the transfer of an incoming telephone call for "group" broadcast in the room. The caller and the person in the classroom shall remain on the line and the students in the class shall hear both sides of the conversation through the overhead speakers.
  - 3. Permit the transfer of the audio portion of the retrieved television programs for "group" broadcast.
  - 4. Allow the telephone to be used as a microphone over the overhead speakers.
  - 5. Permit the telephone/intercom to receive a priority telephone call or intercom call during broadcasts.
  - 6. Automatically suppress all retrieval function control tones to eliminate their interference with broadcasts.
  - 7. Permit the bi-directional duplex operation of the telephone without the "rise time" associated with speaker phones.

## **2.20 VIDEO RF HEADEND EQUIPMENT (EXISTING AND PROPOSED SYSTEMS)**

- A. Modulators:
  - 1. The system includes audio/video modulators meeting all the following minimum specifications:
    - a. Plus sixty (60) dBmV of output level on picture carrier.
    - b. Spurious outputs down at least sixty (60) dB below picture carrier level.
    - c. Output frequency accuracy better than plus (+) or minus (-) five (5) kHz from specified output channel.
    - d. Vestigial sidebands minus (-) sixty (60) dB at minus (-) one (1) MHz, relative to picture carrier. Channels in aeronautical band must be offset to FCC STANDARDS.
    - e. Differential phase of plus (+) or minus (-) 0.5 degree.
    - f. Differential gain of plus (+) or minus (-) 0.5 dB.



- g. Frequency agile (front mounted dip switches).
  - h. Display of audio and video over modulation.
  - i. Front panel features shall include:
    - 1) Video level control
    - 2) Audio level control
    - 3) RF sound level control
    - 4) RF output level control
    - 5) Minus (-) twenty (20) dB test point
    - 6) Channel indicator
  - j. A minimum signal strength of +10 dB at every outlet, plus or minus two (2) dB on adjacent channels.
  - k. A minimum signal strength of +15 dB at every tap, plus or minus three (3) dB on adjacent channels.
  - l. SAW filters using either SAWTEK or CTI SAW.
  - m. Shall use heterodyne conversion.
  - n. Shall be frequency synthesized for optimum crystal lock.
  - o. Chip amplified using either Motorola or TRW high gain chips.
  - p. Shall have IF loops.
  - q. White sync buzz protection.
  - r. Automatic clamping modulation circuit to prevent modulation distortion.
2. Modulators are Blonder Tongue.
- B. Demodulators:
- 1. The system includes demodulators meeting the following specifications:
    - a. On/off switch.
    - b. Power "on" green LED.
    - c. Remote sensor.
    - d. Clock display window: CATV channel and VCR indicators, on/off timer setting/checking mode, quick timer setting/checking mode, program select button, channel + or - (minus) button, add and erase buttons, normal/CATV and channel call up/down buttons, clock setting buttons, input selector switch, and parental lockout feature.
    - e. Frequency agile (54-806 MHz) (front mounted dip switches).
    - f. Sub-board input channels.
  - 2. Demodulators are Blonder Tongue.
- C. Combining Networks:
- 1. The combining network has the quantity of inputs shown on the Drawings with twelve (12) on each combiner, low insertion loss, high isolation, outstanding frequency range, excellent input return loss and must be double shielded. One (1) minimum combiner is provided for each vertical section of video rack.
  - 2. Frequency range of 5 to 1 GHz.
  - 3. Insertion loss must be no greater than 14 dB, equal on all ports.
  - 4. The flatness of response must be + or - 1.5 dB from 10 to 1 GHz.

5. Return loss (inputs) must be 21 dB minimum. (Output) must be 20 dB minimum.
6. Isolation between ports must be 22 dB minimum.
7. Combiners are Blonder Tongue.

D. F Connectors/Terminators:

1. All "F" type connectors shall be provided with terminators or self terminating "F" type connectors as herein after specified.
2. At locations where TV's are mounted, terminators are not required.
3. At locations where TV's are indicated as future, self terminating "F" connectors shall be provided.
4. At all unused ports in the CPCC, screw on terminators shall be provided.
5. At all "F" connectors located in classrooms, office and auxiliary spaces not specifically mentioned above, the "F" connectors shall be self terminating.

**2.21 FIBER OPTIC RECEIVERS/TRANSMITTERS/OPTICAL SPLITTERS**

- A. As part of this project, this contractor shall be responsible to furnish and install all equipment as identified on the plans.
- B. This contractor shall furnish and install a new fiber optic receiver at the Services building for the new International Academy East facility. New fiber optic receivers installed at the Services building shall match the existing ones currently in use.
- C. This contractor shall utilize the existing fiber optic transmitters and optical splitters that are currently in use at the Services building.
- D. This contractor is responsible to furnish and install all necessary fiber optic patch cords and/or coaxial patch cords that will be required to integrate the new International Academy East facility into the existing Dukane media retrieval network.

**2.22 VIDEO EQUIPMENT**

- A. General: The video equipment shall be new, of modern design, and current standard production of the manufacturer.
- B. All miscellaneous equipment required for a complete, professional installation shall be included in the base bid. No allowances for any additional equipment, hardware, cabling, inserts, jacks, blanks, or miscellaneous will be considered unless specifically excluded from the base bid.

**2.23 TELEVISION SETS (EXISTING SYSTEMS)**

- A. This Contractor shall reinstall the television sets (monitors) as indicated on the drawings.
- B. Each television set (monitor) is capable of remote control via an IR signal. Infrared controllers have been provided with each television set.
- C. Refer to TV/monitor-outlet interconnection detail on Drawings for further requirements

- D. All TV's have the following jacks on the back: video output, audio left output, audio right output, video input, audio left input, audio right input and S-video input. Video output is an active output, not just a loop-through of the video input jack.

## **2.24 DIGITAL VIDEO PROJECTORS (EXISTING AND PROPOSED SYSTEMS)**

- A. This Contractor shall reinstall or provide new digital video projectors and projector mounts as indicated on the drawings.

- B. Ceiling mounted digital video projectors shall have the following minimum specifications:

1. Digital video projector

- a. DLP
- b. XGA (1024 x 768) native resolution
- c. 2600 ANSI lumens
- d. 2500:1 contrast ratio
- e. Vertical and horizontal digital keystone correction
- f. Inputs: (2) RGB, (1) DVI, (1) S-Video, (1) Composite, (2) stereo mini jack
- g. Outputs: (1) RGB, (1) stereo mini jack
- h. Minimum 2 watt amplifier with internal speaker
- i. Warranty: (3) year projector, 90 day lamp
- j. AC power cord
- k. AV cables
- l. IR remote control with batteries
- m. Manuals and documentation
- n. Digital video projector shall be a Mitsubishi XD460U.

2. Projector mount

- a. Projector mount shall be a Peerless PRS Series projector mount kit Model PRS242 which includes a projector mount and an adapter plate.
- b. Ceiling plate shall be a Peerless Unistrut adapter ACC 550.
- c. Contractor shall provide and install Unistrut support members, clamps, threaded pipe and other appurtenances necessary for a complete and professional installation. See diagram T15 for a typical installation.
- d. Contractor shall provide and install 1-1/2" NPT black mounting pipes. Contractor shall field verify mounting pipe lengths.

## **2.25 VIDEO SPLITTER (EXISTING SYSTEM)**

- A. VGA video splitter cable:

1. Provide DVI to DVI + VGA splitter cables with the following minimum specifications:

- a. DVI to DVI + VGA Cable  
Model: DVI-8415a  
400 Meadowmont Village Circle, Suite 425  
Chapel Hill, NC 27577  
(888) 463-9927  
www.dvigeart.com

## **2.26 CABLING**

### **A. Cabling:**

1. This contractor shall provide compliance for the entire end-to-end link and will comply with the standards governing the entire channel.
2. This Contractor shall furnish and install and/or relocate all wiring as indicated on the Drawings. All wiring and terminations shall be in full conformance with all of the current editions or revisions of all applicable codes and standards as previously listed under "Regulatory Agencies" of this Section of the Specifications for their intended use on this Project.
3. It is the responsibility of this contractor to provide open top cable supports, i.e. "J" hooks, in the ceiling space for cable support.
4. Cabling shall be run parallel and perpendicular to building walls.
5. All cabling installed in ceiling spaces shall be plenum rated.
6. All cables shall be installed in existing conduits and raceways or an Engineer approved raceway system. Where conduits do not exist, provide "J" hooks sized appropriately for the bundle.
7. All cabling shall be continuous from termination to termination and free from splices, reverses, or other connections. Provide a 15 foot minimum service loop above accessible ceiling for each terminated cable to accommodate future changes. Cable slack shall be stored in a fashion as to protect it from damage.
8. Remove only the amount of cable jacket necessary for termination.
9. Carefully lay all cable with appropriate radius of curvature and protect at bends and corners. Observe minimum bend radius and tension limitations as specified by EIA/TIA.
10. All cables must be routed and managed for a neat and aesthetically pleasing appearance. All work must be installed in a neat and workman like manner.
11. Bundled cables shall be secured with plenum rated Velcro® ties. Zip ties will not be permitted.
12. The contractor shall assure that at the completion of cable installation, cables are free from twists, kinks, sharp bends, cuts, gouges or any other physical damage that might cause alterations to the electrical or optical characteristics of the cables.
13. The contractor shall work carefully with all ceilings and return ceilings to original conditions. Any damages or expenses are the responsibility of the contractor.
14. All entrance and intra-building cable penetration, conduit, cores, wall and ceiling penetrations will be sealed with a 3 M type fire retardant.

## **2.27 DISTRIBUTION CABLE**

### **A. Trunk Cable for RF System:**

1. The trunk line cable shall be AL500 foam plenum rated dielectric solid shielded aluminum jacket. Refer to Drawings for exact type.
2. Loss per hundred (100') feet, at 1000 MHz shall be no greater than 4.1 dB.
3. Cable shall be free of any and all attenuation peaks greater than 1 dB from 5 to 1000 MHz.
4. The structural return loss shall be 30 dB or greater with variable bridge, slow sweep, fixed bridge.

### **B. Drop Cable:**

1. All drop cable shall be plenum rated quad shielded RG-6U foam dielectric. Refer to drawings for exact type.
2. Loss per hundred (100') feet, at 1000 MHz shall be no greater than 6.6 dB.
3. Cable shall be free of any and all attenuation greater than 1 dB nominally from 5 MHz to 1 GHz.
4. The structural return loss shall be 20 dB or greater with variable bridge, slow sweep and fixed termination.

C. Other Cables:

1. RG-6 patch cable. Length as required.
2. RCA patch cable. Length as required.
3. VGA patch cable. Length as required.
4. The Contractor may reuse existing patch cables. If patch cables are found to be defective or the incorrect length, the Contractor shall furnish and install RG-6, RCA and VGA patch cables for connection to each TV. Length as required.
5. The Contractor may reuse existing patch cables. If patch cables are found to be defective or the incorrect length, the Contractor shall furnish and install RCA and VGA patch cables for connection to each Teachers outlet box. Length as required.

**2.28 PASSIVE DEVICES**

A. Taps:

1. All taps shall be of the CATV variety (Rated to 1000MHz).
2. They shall include 1, 2, 4 and 8 way multitaps with changeable plates for selecting tap values.
3. Attenuation range shall be 8, 11, 14, 17, 20, 23, 26, 29, 32 and 35 dB.
4. Housing shall be made of heavy duty die cast with corrosion resistant finish.
5. Frequency range shall be from 5 to 1000 MHz.
6. Flatness response attenuation (input to tap loss + or - 1dB from 10 to 605 MHz).
7. Impedance at all ports shall be 75 ohms.
8. Power capacity shall be 6 amps (nom.) A/C or DC.
9. Return loss shall be greater than 18 dB with fixed attenuation.

B. Splitters:

1. All splitters 2, 3, and 4 ways shall be made of heavy duty die-cast housing with corrosion resistant finish, and machine threaded F-61A terminals (Rated to 1 000MHz).
2. All splitters have the following features: 5/8"-32 tapered counterbored entry ports, reinforced seized center conductor post and RFI integrity exceeding FCC requirements.
3. Frequency range shall be from 5 to 1000MHz.
4. Isolation of 18 dB from 5 to 1000MHz.
5. Bandwidth shall be from 5 to 1000MHz.

a. Insertion Loss:

2 Way	4.4	dB max.
3 Way	6	dB max.
4 Way	7	dB max.

6. Return loss shall be a minimum of 17 dB with fixed bridge.

C. Directional Couplers:

1. All directional couplers 8, 12, 16, 20 and 24 dB values has the following features: corrosion resistant housing, 5/8"-32 tapered countered bore entry ports, reinforced seized center conductor post and RFI integrity exceeding FCC requirements.
2. Frequency range shall be from 5 to 1000MHz.
3. Maximum attenuation shall be 9 dB from 5 to 1000MHz.
4. From 5-650 MHz, the insertion loss shall not exceed 2.2 dB on 8 dB and 12 dB taps and 12 dB on higher taps.
5. Isolation of 18 dB from 5 to 1000MHz.
6. Minimum return loss of 17 dB from 5 to 1000MHz with fixed bridge.

**2.29 VOICE CENTRAL PROCESSING EQUIPMENT - PUBLIC ADDRESS (EXISTING AND PROPOSED)**

- A. This Contractor shall reinstall the reused/relocated speakers or provide new speakers as noted on the drawings.
- B. The Public Address shall have proper amplification to provide a minimum of two (2) watts of audio power to each PA speaker in the building, and five (5) watts of power to each exterior horn/speaker.
- C. Access is from any telephone via entry of proper password. The PA permits:
  1. Audio distribution to any selected zone or all zones simultaneously.
  2. Media Centers shall be a separate zone, offices shall be a separate zone (1 zone for all offices), gymnasiums shall be a separate zone, cafeteria/cafeteriums shall be a separate zone, and hallways shall be provided with a total of four (4) zones and classrooms shall each be a separate zone.
  3. Zone amplification shall be provided by individual twenty (20) watt plug-in cards, at the CPCC.
  4. Each classroom has an individual five (5) watt PA amplifier at every CCP location.
  5. All plug-in cards shall be housed in standard rail frames, with a capacity of sixteen (16) cards per frame.
  6. PA system shall have a minimum of forty (40) hard-wired zones and shall be expandable. The hard wired zones shall be software programmable to accommodate arrangement of any combination of classrooms, offices, and corridors to form a program zone. The program zone shall have overlapping capabilities.
  7. Each card shall have a visual anti-distortion level control.
- D. The background music shall be muted only in the zone where the page is directed. For "all zone" pages, the background music system shall be muted in all zones for local pages; it shall mute the music in only the paged zone.

**2.30 BACKGROUND MUSIC CENTER (EXISTING)**

- A. The existing background music center includes the following separately mounted components:
  1. Digital AM/FM tuner with 5 presets.
  2. Compact disc player.

3. High speed audio cassette duplicator.
4. Dual audio record/play cassette.

- B. The background music center is and shall continue to be fully zoneable and shall be equipped to provide two (2) sources to be broadcast simultaneously and independently to 1-16 field selectable zones simultaneously.

### **2.31 PROGRAM DISTRIBUTION OPERATION**

- A. The system shall provide facilities to distribute program material (i.e. music, radio broadcasts) in the following manner:
1. The staff member approaches the central control rack and inserts a tape, compact disk, or tune desired radio broadcast utilizing the rack mounted tape-tuner CD player unit.
  2. The staff member then "direct-selects" room(s) or areas to send the program via an easy to use color guided room position switch bank panel.
  3. The staff members have full view and choice of all the rooms and locations available.
- B. The system shall provide two (2) simultaneous channels of background music as described in Background Music section.

### **2.32 SPEAKERS (EXISTING AND PROPOSED)**

- A. The speakers are and shall be 8" dual cone two-way with multiple taps. The taps shall be set at mid-range. After the system is installed and operational the sound system shall be balanced to provide uniform sound levels in all spaces by adjusting the taps on the speakers.
- B. The speakers are and shall be provided with backboxes and white round baffles. Back boxes shall be secured to the structure.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION - GENERAL**

- A. All miscellaneous equipment required for a complete, professional installation shall be included in the base bid. No allowances for any additional equipment, hardware, cabling, or miscellaneous will be considered unless specifically excluded from the base bid.
- B. Contractor will meet with district personnel prior to commencement of installation activities to review the following implementation details:
1. installation timeline
  2. shipping logistics
  3. installation process
  4. verify site requirements
- C. Contractor will provide schedule of manufacturer-supplied software installation on district-provided computer equipment.
- D. District personnel will provide a database image of the primary Dukane database server to the Contractor.

Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492  
Troy, Michigan

IDS Project No. 03234-1000 BP27

- E. Contractor will be responsible for the successful loading of the district database server database on the new computer equipment.
- F. Contractor will install new VVCS equipment in existing rack cabinets. Contractor will use existing computer shelves for location and placement of new media retrieval computer equipment.
- G. The contractor shall ring out and identify, with velcro ties clearly marking every cable in the system (both ends). All markings shall include purpose destination and origination of the wire or cable.
- H. Cable lengths at every outlet will have a minimum of four (4') feet of slack and fifteen (15') feet service loop at the head-end.
- I. The contractor shall use standard cable practices in the installation of the RF system.
- J. System design and engineering shall utilize a tap-off system exclusively.
- K. RF taps shall be secured to building supports or cable tray and not allowed to float at cable termination points.
- L. The signal level at every tap shall be fifteen (+15 dB) plus or minus three (-3) dB between adjacent channels.
- M. Signal level at every outlet shall be five (+5 dB) plus or minus two (2) dB between adjacent channels.
- N. All passive components shall be designed for a frequency range of 5 to 16 Hz. The system shall be designed for adjacent channel operation.
- O. The Contractor shall carefully lay all cable with appropriate radius of curvature and protect at bends and corners.
- P. RG-6 video cabling shall be continuous and splice free unless specifically stated otherwise. Cable slack shall be provided at the jack end and the directional tap end. A minimum of five (5) feet of slack cable shall be coiled and secured at each end. This slack shall be exclusive of the length of RG-6 that shall be required to accommodate termination requirements and shall be intended to provide for cable repair and/or equipment relocation. The cable slack shall be stored in a fashion as to protect it from damage.
- Q. The Contractor shall loosely bundle cables with Velcro wraps, suitable for Plenum environments, every twenty (20) feet.
- R. The Contractor shall not fasten supports to pipes, ducts, mechanical equipment or conduit.
- S. The Contractor shall obtain permission from the Owner or the Engineer/Technology Designer before drilling or cutting structural members.
- T. Powder actuated anchoring devices shall not be used to anchor any cable support or raceway system components.



### **3.2 INSTALLATION-SITE REQUIREMENTS**

- A. District will provide one (1) dual serial port adapters to the Contractor for integration into the new media retrieval computer equipment.
- B. Contractor will provide new host adapter cards for the Dukane database server and building database router, total quantity is one (1).
- C. Contractor shall be on site at each building to receive all equipment shipped from manufacturer site for installation.
- D. Contractor will update the Dukane database server at the district head end and load the existing database as provided by the district.
- E. Contractor will install the database router at International Academy East, perform a port scan, and synchronize the main database to the local database router.
- F. Contractor will re-connect video and audio patch cables.

### **3.3 INSTALLATION - TELEVISION SETS**

- A. Television Sets and Mounting Brackets: Each television set shall be located on a mounting bracket capable of holding two hundred and fifty (250) pounds of weight and be swivel type. It is necessary that the TV tuner be restored to channel three (3) whenever the power is turned off.
- B. Test the functionality of the Television set. Rebalance and tune the RF broadband system as necessary.
- C. Where Television Sets are relocated due to requirements of the Contract Documents or general trades work, cabling may be reused/relocated where applicable. Where reusing existing cabling is unfeasible due to length or condition of cabling, abate the existing cabling back to its source and provide and install new cabling to the new location.
- D. Wire: The Contractor shall provide all wire and cables for a complete and operational system.

### **3.4 INSTALLATION - TV SET TOP BOXES**

- A. Test the functionality of the Set Top Box.
- B. Where television sets are relocated due to requirements of the contract documents or general trades work, relocate associated set top boxes and cabling respectively.

### **3.5 INSTALLATION - CEILING MOUNTED PROJECTORS**

- A. Provide and install Unistrut support members, clamps, threaded pipe and other necessary appurtenances.
- B. Provide and install Peerless Unistrut adapters.
- C. Provide and install 1-1/2" NPT black mounting pipes.

- D. Provide and install digital video projectors and accessories.
- E. Provide and install Peerless PRS Series mounting kits including projector mounts and adapter plates.
- F. Configure digital video projector lamp to operate in "low mode".
- G. Configure the splash screen on each digital video projector with an Owner provided logo.
- H. Mount projector to ceiling following the manufacturer's instructions.
- I. Provide and install new faceplates, frames, jacks, inserts and blanks as specified.
- J. Disconnect existing LCD monitor from the existing computer.
- K. Provide and install a DVI to DVI + VGA splitter cable.
- L. Reconnect LCD monitor to DVI to DVI + VGA splitter cable using an Owner provided DVI cable.
- M. Connect the VGA output of the DVI to DVI + VGA splitter cable to the contractor provided VGA outlet.
- N. Apply Owner provided asset tags to all projectors.
- O. Provide and install labels on all faceplates.
- P. Record the asset tag number, building/location, identification number, manufacturer serial number and installation date in an Owner provided Microsoft Excel database.
- Q. Remove all packing material from school properties.
- R. Calibrate, configure, and test new projector with the Owners existing computer source device.
- S. Refer to drawings for faceplate configurations and interconnection details.
- T. Any system or component that fails during installation shall be replaced upon discovery

### **3.6 TESTING AND CALIBRATION**

- A. Ceiling mount projectors:
  - 1. Adjust for maximum image size on the Owners existing and new screens.
  - 2. Adjust focus, brightness, contrast, color settings and keystone as necessary for a proper image in an educational environment.
- B. Adjust video peaking control on the Extron receivers as necessary to obtain optimum picture sharpness.

**3.7 SYSTEM TESTING - RADIATION LEAKAGE TESTING**

- A. Beginning July 1, 1990, every RF cable television system shall comply with the NEW FCC RULES AND REGULATIONS on signal leakage. CODE OF FEDERAL REGULATIONS TITLE 47 - TELECOMMUNICATION PART 76-CABLE TELEVISION SERVICE.
- B. The rule simply stated says any operator of an RF system CANNOT leak frequencies into the atmosphere which may interfere with aeronautical and marine emergency radio frequencies.
- C. The limits of the radiation leakage are as follows: (See Table 1)

<u>FREQUENCIES</u>	<u>RADIATION LEAKAGE uV/M</u>	<u>DISTANCE (FEET)</u>
Below 54 Mhz	15	100'
Between 54 MHZ and 216 MHZ	20	10'
Over 216 MHZ	15	100'

TABLE 1

In order to test for these limits, the successful Contractor must supply the following equipment: Strength Level Meter (SLM) of adequate accuracy, such as a Wavetek Sam 1, a dipole antenna.

NOTE: Care must be taken to insure the dipole is properly tuned and placed prior to recording the measurements.

The method of accurately measuring and calculating the leakage of the RF system are as follows:

- 1. To get an accurate reading of the system, the lowest and highest frequencies should be tested. Lowest 55 MHz and highest 213 MHz.
- 2. Set-up horizontal dipole as shown in Figure 1. (Length of the elements on the dipole antenna are calculated by using the following formula:

$$L = \frac{11808}{2f}$$

L = Length in inches  
f = Frequencies in MHz

- 3. Hook up antenna to the input of the SLM and read dBmv for the frequency being tested. From this reading a conversion from dBmv to uV/M will determine whether the system is in compliance with FCC RULES AND REGULATIONS, when compared to the Table listed above.
- 4. Critical Factors to be Aware of:
  - a. Good quality cable.
  - b. Connectors with RFI (Radio Frequency Interference) shielding.
  - c. Good quality Active and Passive Devices.
  - d. Care in the installing of cable system.

- e. NOTE: In order to perform this next series of system tests the following test equipment shall be supplied by the installing contractor.

- 1) IFR-7550 Spectrum Analyzer.
- 2) WaveTek SAM I Signal Level Meter.
- 3) Fluke 77 volt-meter

### **3.8 FREQUENCY RESPONSE**

- A. An IFR-7550 spectrum analyzer shall be used to measure and monitor system frequency response. The test point used will be directly off the test port of the combining network. After setting up the spectrum analyzer to view all of the channels in the system, adjustments, if needed, shall be made on the processing equipment to insure a flat frequency response with at least 15 dB separation between the audio and video signals.
- B. This test should be repeated after twenty-four (24) hours to insure that the frequency response has not drifted due to head-end burn-in.

### **3.9 CROSS MODULATION TEST**

- A. Cross modulation is the maximum usable output level of a system. This effect can easily be seen on a TV receiver. When cross modulation appears it is seen as herring bones or wipers which is an over modulation of a channel, i.e. one channel overlapping another channel.
- B. With the use of the spectrum analyzer and the Fluke 77 voltmeter, measurements shall be made using the following procedure:
1. Feed the system output into the spectrum analyzer through a six (6) dB pad and a band pass filter. Center the desired carrier on the spectrum analyzer.
  2. Simultaneously modulate all channels 100%.
  3. Convert the vertical output of the IF section of the spectrum analyzer to the output of the volt meter, and set the spectrum analyzer band width to 300 kHz and reduce scan width to 20 kHz. Adjust frequencies for maximum amplitude and adjust analyzer to get a good trace on the display.
  4. Set band width on volt meter to 30 kHz and adjust frequency control until volt meter AFC locks on the 15 kHz modulation.
  5. Adjust analyzer variable IF until volt meter reads 0.
  6. Switch off modulation on channel displayed and read the cross modulation on the voltmeter. The percentage of change in levels is the percentage of cross modulation.

### **3.10 HUM MODULATION TEST**

- A. Hum modulation is a 60 cycle AC voltage which has manifested itself into the system. This is easily detectable on a TV set as a large horizontal bar that moves slowly up or down. This test is accomplished by locking the system output to a signal level meter and reading the hum modulation directly. Because some hum is inherent in the instrument, the test is limited to relatively high levels of hum modulation (-50 dB or worse).

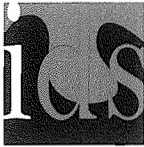
### 3.11 SIGNAL TO NOISE RATIO TEST

- A. To provide the highest quality TV picture at any point in the RF system, the signal to noise ratio must be measured at a level of at least 43 dB. What this means is that the RF signal must be sufficiently strong enough to override the noise in the system to avoid having poor quality (snowy) TV pictures.
- B. The testing procedure for (S/N) is as follows:
  - 1. Connect your SAM I signal level meter input to the output of the last device in the system (longest run from central processing control console [headend]).
  - 2. Disconnect all signals from the system and take readings from the lowest and highest channels used in the system.
  - 3. Obtain a corrected noise level for each channel using the noise calibration of the particular meter being used.
  - 4. By subtracting the corrected noise level for each channel from the normal signal readings at that point in the system, you will determine the signal to noise ratio at the channel in the system.
  - 5. The overall S/N ratio of the system is the average of the lowest and highest channels.

### 3.12 TESTING

- A. District Head End
  - 1. RF Receive/RF Transmit
    - a. Test and balance RF Receive and Transmit signal via the existing fiber optic network.
    - b. Verify signal strength and quality on all frequencies and channels.
  - 2. Dukane Database Server:
    - a. Verify the integrity of the the database and all infra-red command codes.
    - b. Verify connectivity to all database router equipment in all other buildings.
- B. International Academy East
  - 1. RF Receive/RF Transmit
    - a. Test and balance RF Receive and Transmit via the existing fiber optic network.
    - b. Verify signal strength and quality on all frequencies and channels.
  - 2. Database Router
    - a. Perform port scan.
    - b. Activate database router.
    - c. Test and verify access to all media source devices from a minimum of four classrooms.

**END OF SECTION 16795**



**Integrated Design  
Solutions**

888 W. Big Beaver, Ste. 200  
Troy, MI 48084  
tel 248.823.2100  
fax 248.823.2200

## PRE-BID REQUEST FOR INFORMATION NO. 1

Date: February 29, 2008

Project Name: Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492

IDS Project No.: 03234-1000 BP27

The Contractor requests that IDS, LLC supply to them the following information/clarification relating to the above project.

- Q1. Is a permit required for telecommunications work?  
A1. Effective November 23, 2007, the Michigan Bureau of Construction Codes no longer requires permits for telecommunications work per Michigan Electrical Code 8019.

**MEC 80.19. Permits and Certificates.** “. . . This section does not apply to installations that are referred to in section 7(3) . . . (o) of 1956 PA 217, MCL 338.887.”

**1956 PA 217, MCL 338.887 Electrical contractor's license requirements; exceptions. Sec. 7. (3)(o).** “The construction, installation, maintenance, repair and renovation of telecommunications equipment and related systems by a person, firm or corporation primarily engaged in the telecommunications and related information systems industry. This exemption does not include the construction, installation, maintenance repair and renovation of a fire system.”

- Q2. Can the existing classroom Cat 5 data cabling that has been coiled up at the cable tray be reused?  
A2. Yes, it may be reused for new work in the room from which it was removed providing that the installation is in accordance with the project specifications and meets the applicable data category testing standards. All associated data jacks shall be new.
- Q3. Will the Owner deliver the equipment that is to be reinstalled to the International Academy East (IAE) building or is this bidder/contractor to include the pick-up and delivery from the Owner's storage facility to the IAE building with their bid?  
A3. The bidder/contractor will be responsible for pick-up and delivery of the stored equipment to the job site. This equipment is stored at TSD's 1140 Rankin facility which is located approximately two (2) miles south and west of the IAE building.

- Q4. Will the equipment that is indicated to be turned over to the Owner be picked up from the job site by the Owner, or will this bidder/contractor have to deliver the equipment to the Owner's storage facility?
- A4. Refer to the Specification Section 16015, Page 9, Paragraph 3.2.H.

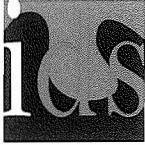
Rae Killips  
(Signature)

Electrical Engineer  
Title

2-29-08  
Date

cc: S. Bryan, TSD  
F. Lams, TSD  
R. Bracci, ids  
File

F:\2003\03234\1000\Spec\BP27 - IAE\pbrf\001.doc



Integrated Design Solutions

888 W. Big Beaver, Ste. 200  
Troy, MI 48084  
tel 248.823.2100  
fax 248.823.2200

www.ids-troy.com

## ADDENDUM NO. 1

Issue Date: February 21, 2008

Project Name: Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492

IDS Project No.: 03234-1000 BP27

This Addendum is issued prior to receipt of bids in order to modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections. Bidders are to indicate receipt of this Addendum in the space provided on the Bid Form.

### **NEW OR REVISED DOCUMENTS ISSUED WITH THIS ADDENDUM**

Project Manual Documents: Prevailing Wage Rate Schedules, Pages 1 through 24

Drawings: N/A

Sketches: N/A

### **PROJECT MANUAL DOCUMENTS DELETED OR REVISED BUT NOT ISSUED**

Item No. 1 None

### **DRAWINGS DELETED OR REVISED BUT NOT ISSUED**

Item No. 1 None

cc: File

ec: S. Bryan, TSD  
F. Lams, TSD  
R. Bracci, ids

f:\2003\03234\1000\spec\add001.docx





STATE OF MICHIGAN

JENNIFER M. GRANHOLM  
GOVERNOR

DEPARTMENT OF LABOR & ECONOMIC GROWTH  
LANSING

KEITH W. COOLEY  
DIRECTOR

## REQUIREMENTS OF THE PREVAILING WAGES ON STATE PROJECTS ACT, PUBLIC ACT 166 OF 1965

The Michigan Department of Labor & Economic Growth determines prevailing rates pursuant to the Prevailing Wages on State Projects Act, Public Act 166 of 1965, as amended. The purpose of establishing prevailing rates is to provide minimum rates of pay that must be paid to 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. Prevailing wage is satisfied when wages plus fringe benefits paid to a worker are equal to or greater than the required rate.

### 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, **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 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 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 including certified payroll, as used in the industry, 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 & Hour Division. The department will investigate and attempt to resolve the complaint informally. During the course of an investigation, if the requested records and posting certification are not made available in compliance with Section 5 of Act 166, the investigation will be concluded and a referral to the Office of Prosecuting Attorney for criminal action under Section 7 and/or the Office of Attorney General for civil action will be made. The Office of Attorney General will pursue costs and fees associated with a lawsuit if filing is necessary to obtain records.

A violation of Act 166 may result in the contractor's name being added to the Prevailing Wage Act Violators List published on the division's website, updated monthly. This list includes the names and addresses of contractors and subcontractors the division has found in violation of Act 166 based on complaints from individuals and third parties. The Prevailing Wage Act Violators List is intended to inform contracting agents of contractors and subcontractors that have violated Act 166 for use in determining who should receive state-funded projects.



WAGE & HOUR DIVISION

P.O. BOX 30476 • LANSING, MICHIGAN 48909-7976

www.michigan.gov/wagehour • (517) 335-0400 • FAX (517) 335-0077

# ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS	
<b>CLASS I</b>	<p>Backfiller Tamper, Backhoe, Batch Plant Operator, Clam-Shell, Concrete Paver (2 drums or larger), Conveyor Loader (Euclid type), Crane (crawler, truck type or pile driving), Dozer, Dragline, Elevating Grader, End Loader, Gradall (and similar type machine), Grader, Power Shovel, Roller (asphalt), Scraper (self propelled or tractor drawn), Side Broom Tractor (type D-4 or larger), Slope Paver, Trencher (over 8' digging capacity), Well Drilling Rig, Mechanic, Slip Form Paver, Hydro Excavator.</p>
<b>CLASS II</b>	<p>Boom Truck (power swing type boom), Crusher, Hoist, Pump (1 or more 6" discharge or larger gas or diesel powered by generator of 300 amps or more, inclusive of generator), Side Boom Tractor (smaller than type D-4 or equivalent), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller), Vac Truck.</p>
<b>CLASS III</b>	<p>Air Compressors (600 cfm or larger), Air Compressors (2 or more less than 600 cfm), Boom Truck (non-swinging, non-powered type boom), Concrete Breaker (self-propelled or truck mounted, includes compressor), Concrete Paver (1 drum, ½ yard or larger), Elevator (other than passenger), Maintenance Man, Mechanic Helper, Pump (2 or more 4" up to 6" discharge, gas or diesel powered, excluding submersible pump), Pumpcrete Machine (and similar equipment), Wagon Drill Machine, Welding Machine or Generator (2 or more 300 amp or larger, gas or diesel powered).</p>
<b>CLASS IV</b>	<p>Boiler, Concrete Saw (40HP or over), Curing Machine (self-propelled), Farm Tractor (w/attachment), Finishing Machine (concrete), Firemen, Hydraulic Pipe Pushing Machine, Mulching Equipment, Oiler (2 or more up to 4", exclude submersible), Pumps (2 or more up to 4" discharge if used 3 hrs or more a day-gas or diesel powered, excluding submersible pumps), Roller (other than asphalt), Stump Remover, Vibrating Compaction Equipment (6' wide or over), Trencher (service) Sweeper (Wayne type and similar equipment), Water Wagon, Extend-a-Boom Forklift.</p>

HAZARDOUS WASTE ABATEMENT ENGINEERS	
<b>CLASS I</b>	<p>Backhoe, Batch Plant Operator, Clamshell, Concrete Breaker when attached to hoe, Concrete Cleaning Decontamination Machine Operator, Concrete Pump, Concrete Paver, Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slop Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator (self-propelled), and Well Drilling Rig.</p>
<b>CLASS II</b>	<p>Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, and Welding Machine.</p>
	<p>Regular Crane Operators rate shall include: Mechanics, Crane Operators, Dragline Operators, Boom Truck Operators, Power Shovel Operators and Concrete Pumps with booms.</p> <p style="text-align: right;">Revised: 09/07/06</p>

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.

XXXHHHHHDY - 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)



JENNIFER M. GRANHOLM  
GOVERNOR

Michigan Department of Labor & Economic Growth  
Wage & Hour Division  
PO Box 30476  
Lansing , MI 48909-7976  
517.335.0400  
www.michigan.gov/wagehour



KEITH W. COOLEY  
DIRECTOR

**Informational Sheet: Prevailing Wages on State Projects  
General Information Regarding Fringe Benefits**

**Certain** fringe benefits may be credited toward the payment of the Prevailing Wage Rate:

- If a fringe benefit is paid directly to a construction mechanic
- If a fringe benefit contribution or payment is made on behalf of a construction mechanic
- If a fringe benefit, which may be provided to a construction mechanic, is pursuant to a written contract or policy
- If a fringe benefit is paid into a fund, for a construction mechanic

When a fringe benefit is not paid by an hourly rate, the hourly credit will be calculated based on the annual value of the fringe benefit divided by 2080 hours per year (52 weeks @ 40 hours per week).

The following is an example of the types of fringe benefits allowed and how an hourly credit is calculated:

Vacation	40 hours X \$14.00 per hour = \$560/2080 =	\$0.27
Dental insurance	\$31.07 monthly premium X 12 mos. = \$372.84 /2080 =	\$0.18
Vision insurance	\$5.38 monthly premium X 12 mos. = \$64.56/2080 =	\$0.03
Health insurance	\$230.00 monthly premium X 12 mos. = \$2,760.00/2080 =	\$1.33
Life insurance	\$27.04 monthly premium X 12 mos. = \$324.48/2080 =	\$0.16
Tuition	\$500.00 annual cost/2080 =	\$0.24
Bonus	4 quarterly bonus/year x \$250 = \$1000.00/2080 =	\$0.48
401k Employer Contribution	\$2000.00 total annual contribution/2080 =	\$0.96
<b>Total Hourly Credit</b>		<b>\$3.65</b>

Other examples of the types of fringe benefits allowed:

- Sick pay
- Holiday pay
- Accidental Death & Dismemberment insurance premiums

The following are examples of items that **will not** be credited toward the payment of the Prevailing Wage Rate

- Legally required payments, such as:
  - Unemployment Insurance payments
  - Workers' Compensation Insurance payments
  - FICA (Social Security contributions, Medicare contributions)
- Reimbursable expenses, such as:
  - Clothing allowance or reimbursement
  - Uniform allowance or reimbursement
  - Gas allowance or reimbursement
  - Travel time or payment
  - Meals or lodging allowance or reimbursement
  - Per diem allowance or payment
- Other payments to or on behalf of a construction mechanic that are not wages or fringe benefits, such as:
  - Industry advancement funds
  - Financial or material loans

**Official Request** 206  
**Requestor:** TROY SCHOOL DISTRICT

**Project Description:** TECHNOLOGY RENOVATIONS  
**Project Number:** INTERNATIONAL ACADEMY EAST

**Oakland County**  
**Official 2008 Prevailing Wage Rates for State Funded Projects**

**Issue Date:** 2/13/2008  
**Contract must be awarded by** 5/13/2008

**Page 1 of 20**

<u>Classification</u>			Straight	Time and	Double		
Name	Description		Hourly	a Half	Time	Overtime	Provision
<b>Asbestos &amp; Lead Abatement Laborer</b>							
Asbestos & Lead Abatement Laborer	MLDC		\$32.65	\$43.39	\$54.13	H H H X X X	X D Y
<b>Asbestos &amp; Lead Abatement, Hazardous Material Handler</b>							
Asbestos and Lead Abatement, Hazardous Material Handler	AS207		\$32.65	\$44.75	\$56.85	H H H X X X	X D Y
<b>Boilermaker</b>							
Boilermaker	BO169		\$51.27	\$76.00	\$100.74	H H H H H H	H D Y
<b>Apprentice Rates:</b>							
	1st 6 months		\$38.12	\$56.28	\$74.44		
	2nd 6 months		\$39.17	\$57.86	\$76.54		
	3rd 6 months		\$40.23	\$59.45	\$78.66		
	4th 6 months		\$41.29	\$61.04	\$80.78		
	5th 6 months		\$42.33	\$62.60	\$82.86		
	6th 6 months		\$44.44	\$65.76	\$87.08		
	7th 6 months		\$46.54	\$68.91	\$91.28		
	8th 6 months		\$48.65	\$72.08	\$95.50		
<b>Bricklayer</b>							
Bricklayer, stone mason, pointer, cleaner, caulker	BR1		\$48.96	\$73.44	\$97.92	H H D H D D	D D N
<b>Apprentice Rates:</b>							
	First 6 months		\$29.49	\$44.24	\$58.98		
	2nd 6 months		\$31.31	\$46.97	\$62.62		
	3rd 6 months		\$33.13	\$49.70	\$66.26		
	4th 6 months		\$34.95	\$52.43	\$69.90		
	5th 6 months		\$36.77	\$55.16	\$73.54		
	6th 6 months		\$38.59	\$57.89	\$77.18		
	7th 6 months		\$40.41	\$60.62	\$80.82		
	8th 6 months		\$42.23	\$63.35	\$84.46		

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

**Official Rate Schedule**

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 2 of 20

Classification		Straight	Time and	Double	Overtime Provision	
Name	Description	Hourly	a Half	Time		
<b>Carpenter</b>						
	Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)	CA1045	\$42.24	\$59.86	\$77.47	H H H H D D D D N
	<b>Apprentice Rates:</b>					
	1st 6 months		\$21.10	\$28.15	\$35.19	
	2nd 6 months		\$24.62	\$33.42	\$42.23	
	3rd 6 months		\$26.38	\$36.07	\$45.75	
	4th 6 months		\$28.15	\$38.72	\$49.29	
	5th 6 months		\$29.91	\$41.36	\$52.81	
	6th 6 months		\$31.67	\$44.01	\$56.33	
	7th 6 months		\$33.42	\$46.63	\$59.83	
	8th 6 months		\$35.19	\$49.28	\$63.37	
<b>Carpenter</b>						
		CA687Z1	\$46.58	\$66.30	\$86.02	H H D H D D D D Y
	<b>Apprentice Rates:</b>					
	1st Year		\$28.84	\$39.69	\$50.54	
	3rd 6 months		\$30.81	\$42.64	\$54.48	
	4th 6 months		\$32.78	\$45.60	\$58.42	
	5th 6 months		\$34.75	\$48.56	\$62.36	
	6th 6 months		\$36.73	\$51.53	\$66.32	
	7th 6 months		\$38.70	\$54.49	\$70.26	
	8th 6 months		\$40.66	\$57.43	\$74.18	
<b>Cement Mason</b>						
	Cement Mason	CE514	\$43.95	\$61.87	\$79.78	H H D H H H H D N
	<b>Apprentice Rates:</b>					
	1st 6 months		\$25.64	\$34.60	\$43.56	
	2nd 6 months		\$27.45	\$37.31	\$47.18	
	3rd 6 months		\$31.02	\$42.68	\$54.32	
	4th 6 months		\$34.61	\$48.05	\$61.50	
	5th 6 months		\$36.40	\$50.74	\$65.08	
	6th 6 months		\$39.99	\$56.13	\$72.26	
<b>Drywall</b>						
	Drywall Taper	PT-22-D	\$38.45	\$50.90	\$63.35	H H D H D D D D N
	<b>Apprentice Rates:</b>					
	First 3 months		\$26.00	\$32.23	\$38.45	
	Second 3 months		\$28.49	\$35.96	\$43.43	
	Second 6 months		\$30.98	\$39.69	\$48.41	
	Third 6 months		\$33.47	\$43.43	\$53.39	
	4th 6 months		\$34.71	\$45.29	\$55.87	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 3 of 20

Classification		Straight	Time and	Double	Overtime Provision
Name	Description	Hourly	a Half	Time	
<b>Electrician</b>					
Road Way Electrical Work	EC-17	\$45.37	\$65.63	\$85.90	H H H H H H D Y
Double time due after 16 hours on any calendar day and all hours Sunday.					
<b>Apprentice Rates:</b>					
	1st 6 months	\$29.17	\$41.34	\$53.50	
	2nd 6 months	\$31.19	\$44.36	\$57.54	
	3rd 6 months	\$33.21	\$47.40	\$61.58	
	4th 6 months	\$35.23	\$50.43	\$65.62	
	5th 6 months	\$37.25	\$53.46	\$69.66	
	6th 6 months	\$41.32	\$59.57	\$77.80	
<u>Subdivision of county</u>	Holly not included				
Inside Wireman	EC-58-IW	\$53.62	\$71.49	\$89.36	H H H H H H D N
<b>Apprentice Rates:</b>					
	0-1000 hours	\$32.18	\$39.33	\$46.48	
	1000-2000 hours	\$33.97	\$42.02	\$50.06	
	2000-3500 hours	\$35.75	\$44.68	\$53.62	
	3500-5000 hours	\$37.54	\$47.38	\$57.20	
	5000-6500 hours	\$41.12	\$52.74	\$64.36	
	6500-8000 hours	\$44.68	\$58.08	\$71.48	
Sound and Communication Installer/Technician	EC-58-SC	\$32.54	\$44.20	\$55.86	H H H H H H D N
<b>Apprentice Rates:</b>					
	Period 1	\$20.88	\$26.71	\$32.54	
	Period 2	\$22.04	\$28.46	\$34.86	
	Period 3	\$23.21	\$30.21	\$37.20	
	Period 4	\$24.38	\$31.96	\$39.54	
	Period 5	\$25.55	\$33.72	\$41.88	
	Period 6	\$26.71	\$35.46	\$44.20	
<b>Elevator Constructor</b>					
Elevator Constructor	EL 36	\$56.46		\$94.99	D D D D D D D Y
Elevator Constructor					
<b>Apprentice Rates:</b>					
	1st Year Apprentice	\$37.74		\$58.93	
	2nd Year Apprentice	\$41.90		\$66.94	
	3rd Year Apprentice	\$43.98		\$70.95	
	4th Year Apprentice	\$48.14		\$78.96	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 4 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Glazier</b>					
Glazier	GL-357	\$42.60	\$56.83		H H H H H H H Y
	<b>Apprentice Rates:</b>				
	1st 6 months	\$28.37	\$35.48		
	2nd 6 months	\$29.80	\$37.63		
	3rd 6 months	\$32.64	\$41.89		
	4th 6 months	\$34.07	\$44.03		
	5th 6 months	\$35.49	\$46.16		
	6th 6 months	\$36.91	\$48.29		
	7th 6 months	\$38.33	\$50.42		
	8th 6 months	\$41.18	\$54.69		
<b>Heat and Frost Insulator</b>					
Spray Insulation	AS25S	\$20.14	\$29.14		H H H H H H H N
<b>Heat and Frost Insulator and Asbestos Worker</b>					
Heat and Frost Insulators and Asbestos Workers	AS25	\$48.20	\$62.86	\$77.52	H H H H H H H D Y
	<b>Apprentice Rates:</b>				
	1st Year	\$29.59	\$37.66	\$45.72	
	2nd Year	\$37.60	\$47.13	\$56.66	
	3rd Year	\$39.40	\$49.66	\$59.92	
	4th Year	\$42.34	\$54.07	\$65.80	
<b>Ironworker</b>					
Fence Erecting	IR-25-F	\$41.03	\$61.26	\$81.49	H H D H H H D D Y
Glazing	IR-25-GZ1	\$48.48	\$72.64	\$96.65	H H D H H H D D Y
Mesh Iron Work	IR-25-MR	\$42.25	\$60.43	\$78.60	H H D H D D D D N
Pre-engineered Metal Work	IR-25-PE-Z1-Z2	\$40.94	\$51.62	\$62.29	H H H X X X D Y
	<b>Apprentice Rates:</b>				
	1st level	\$23.36	\$28.54	\$33.72	
	2nd level	\$24.63	\$30.32	\$36.02	
	3rd level	\$25.92	\$32.13	\$38.35	
	4th level	\$27.19	\$33.92	\$40.65	
	5th level	\$28.47	\$35.72	\$42.97	
	6th level	\$29.75	\$37.52	\$45.28	
Reinforced Iron Work	IR-25-RF	\$48.78	\$72.95	\$97.11	H H D H D D D D N
Rigging Work	IR-25-RIG	\$53.98	\$80.75	\$107.52	H H H H H H H D N

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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



# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 5 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Decking	IR-25-SD	\$46.40	\$69.32	\$92.23	H H D H H H D D Y
Structural, ornamental, conveyor, welder and pre-cast Apprentice rates apply to structural, conveyor, fence, glazing, reinforced, rigging, & siding decking	IR-25-STR	\$54.11	\$80.88	\$107.65	H H D H H H D D Y
<b>Apprentice Rates:</b>					
	Level 1	\$27.34	\$40.73	\$54.11	
	Level 2	\$30.02	\$44.74	\$59.47	
	Level 3	\$32.70	\$48.77	\$64.83	
	Level 4	\$35.37	\$52.77	\$70.17	
	Level 5	\$38.05	\$56.80	\$75.53	
	Level 6	\$40.73	\$60.81	\$80.89	
	Level 7	\$43.39	\$64.80	\$86.21	
	Level 8	\$46.08	\$68.83	\$91.59	
Industrial Door erection & construction	IR-25-STR-D	\$34.69	\$46.09	\$57.48	H H D H H H D D Y
<b>Laborer</b>					
Construction Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Demolition Laborer	L1076-A-A	\$37.62	\$53.35	\$69.07	H H D H D D D D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$31.98	\$44.89	\$57.79	
	1,001-2,000 work hours	\$33.11	\$46.58	\$60.05	
	2,001-3,000 work hours	\$34.24	\$48.28	\$62.31	
	3,001-4,000 work hours	\$36.49	\$51.66	\$66.81	
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	\$37.88	\$53.74	\$69.59	H H D H D D D D Y
Lansing Burner, Blaster & Powder Man	L1076-A-C	\$38.37	\$54.47	\$70.57	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	\$38.12	\$54.10	\$70.07	H H D H D D D D Y
Cleaner/ sweeper laborer, furniture laborer	L1076-A-E	\$32.17	\$45.17	\$58.17	H H D H D D D D Y
Demolition Laborer	L1076-D	\$37.62	\$53.35	\$69.07	H H D H D D D D Y

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 6 of 20

Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Plasterer Tender,	Plastering Machine Operator	\$39.00	\$55.42	\$71.83	H H D H D D D D N
<b>Apprentice Rates:</b>					
	0 - 1,000 hours	\$31.99	\$44.90	\$57.81	
	1,001 - 2,000 hours	\$33.11	\$46.58	\$60.05	
	2,001 - 3,000 hours	\$34.24	\$48.28	\$62.31	
	3,001 - 4,000 hours	\$36.49	\$51.66	\$66.81	
<b>Laborer - Hazardous</b>					
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	\$37.62	\$53.35	\$69.07	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$31.98	\$44.89	\$57.79	
	1,001-2,000 work hours	\$33.11	\$46.58	\$60.05	
	2,001-3,000 work hours	\$34.24	\$48.28	\$62.31	
	3,001-4,000 work hours	\$36.49	\$51.66	\$66.81	
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	\$38.62	\$54.85	\$71.07	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$32.74	\$46.03	\$59.31	
	1,001-2,000 work hours	\$33.91	\$47.78	\$61.65	
	2,001-3,000 work hours	\$35.09	\$49.56	\$64.01	
	3,001-4,000 work hours	\$37.44	\$53.08	\$68.71	
<b>Laborer Underground - Tunnel, Shaft &amp; Caisson</b>					
Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	LAUCT-Z1-1	\$33.54	\$44.30	\$55.05	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.70	\$37.04	\$45.37	
	1,001-2,000 work hours	\$29.67	\$38.49	\$47.31	
	2,001-3,000 work hours	\$30.64	\$39.95	\$49.25	
	3,001-4,000 work hours	\$32.57	\$42.85	\$53.11	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 7 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.	LAUCT-Z1-2	\$33.65	\$44.46	\$55.27	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.79	\$37.17	\$45.55	
	1,001-2,000 work hours	\$29.76	\$38.74	\$47.71	
	2,001-3,000 work hours	\$30.73	\$40.09	\$49.43	
	3,001-4,000 work hours	\$32.68	\$43.01	\$53.33	
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	\$33.71	\$44.55	\$55.39	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.83	\$37.23	\$45.63	
	1,001-2,000 work hours	\$29.81	\$38.71	\$47.59	
	2,001-3,000 work hours	\$30.78	\$40.16	\$49.53	
	3,001-4,000 work hours	\$32.73	\$43.09	\$53.43	
Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.	LAUCT-Z1-4	\$33.89	\$44.82	\$55.75	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.97	\$37.45	\$45.91	
	1,001-2,000 work hours	\$29.95	\$38.91	\$47.87	
	2,001-3,000 work hours	\$30.94	\$40.40	\$49.85	
	3,001-4,000 work hours	\$32.91	\$43.35	\$53.79	
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	\$34.14	\$45.20	\$56.25	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$29.16	\$37.73	\$46.29	
	1,001-2,000 work hours	\$30.15	\$39.21	\$48.27	
	2,001-3,000 work hours	\$31.15	\$40.71	\$50.27	
	3,001-4,000 work hours	\$33.14	\$43.70	\$54.25	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 8 of 20

Classification						
Name	Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
=====						
Class VI - Dynamite man and powder man.	LAUCT-Z1-6		\$34.47	\$45.69	\$56.91	H H H H H H D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$29.40	\$38.09	\$46.77	
	1,001-2,000 work hours		\$30.42	\$39.62	\$48.81	
	2,001-3,000 work hours		\$31.43	\$41.13	\$50.83	
	3,001-4,000 work hours		\$33.46	\$44.18	\$54.89	
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		\$27.75	\$35.61	\$43.47	H H H H H H D Y
	<b>Apprentice Rates:</b>					
	0-1,000 work hours		\$24.36	\$30.53	\$36.69	
	1,001-2,000 work hours		\$25.04	\$31.55	\$38.05	
	2,001-3,000 work hours		\$25.72	\$32.57	\$39.41	
	3,001-4,000 work hours		\$27.07	\$34.59	\$42.11	
<b>Landscape Laborer</b>						
Landscape Specialist includes air, gas, and diesel equipment operator, lawn sprinkler installer on landscaping work where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintenance of landscape	LLAN-Z1-A		\$24.38	\$33.81	\$43.24	X X H X X X H D Y
All work pertaining to landscaping where seeding, sodding, planting, cutting, trimming, backfilling, rough grading or maintaining of landscape projects occurs which may include small power tool operator, lawn sprinkler installer helper, material mover, & truck driver.	LLAN-Z1-B		\$20.16	\$27.48	\$34.80	X X H X X X H D Y
<b>Marble Finisher</b>						
Marble Finisher	TT32-MF		\$39.57	\$49.90	\$60.23	H H D H D D D D N
	<b>Apprentice Rates:</b>					
	Level 1		\$19.30	\$24.91	\$30.52	
	Level 2		\$20.40	\$26.56	\$32.72	
	Level 3		\$24.67	\$31.27	\$37.87	
	Level 4		\$26.01	\$33.28	\$40.55	
	Level 5		\$27.38	\$34.86	\$42.34	
	Level 6		\$28.85	\$36.70	\$44.56	
	Level 7		\$30.39	\$38.30	\$46.21	
	Level 8		\$31.75	\$39.92	\$48.09	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 9 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Marble Mason</b>					
Marble Mason	TT32-MM	\$45.76	\$59.19	\$72.61	H H D H D D D D N
	<b>Apprentice Rates:</b>				
	Level 1	\$24.86	\$31.89	\$38.93	
	Level 2	\$27.65	\$35.43	\$43.21	
	Level 3	\$30.50	\$38.57	\$46.64	
	Level 4	\$33.00	\$41.96	\$50.92	
	Level 5	\$35.10	\$44.33	\$53.56	
	Level 6	\$38.52	\$49.39	\$60.27	
	Level 7	\$39.37	\$50.53	\$61.69	
	Level 8	\$40.22	\$51.81	\$63.39	
<b>Operating Engineer</b>					
Crane with boom & jib or leads 120' or longer	EN-324-A120	\$49.26	\$65.97	\$82.68	H H D H D D D D Y
Crane with boom & jib or leads 140' or longer	EN-324-A140	\$50.08	\$67.20	\$84.32	H H D H D D D D Y
Crane with boom & jib or leads 220' or longer	EN-324-A220	\$50.38	\$67.65	\$84.92	H H D H D D D D Y
Crane with boom & jib or leads 300' or longer	EN-324-A300	\$51.88	\$69.90	\$87.92	H H D H D D D D Y
Crane with boom & jib or leads 400' or longer	EN-324-A400	\$53.38	\$72.15	\$90.92	H H D H D D D D Y
Compressor or welding machine	EN-324-CW	\$38.41	\$49.70	\$60.98	H H D H D D D D Y
Forklift, lull, extend-a-boom forklift	EN-324-FL	\$45.72	\$60.66	\$75.60	H H D H D D D D Y
Fireman or oiler	EN-324-FO	\$37.38	\$48.15	\$58.92	H H D H D D D D Y
Regular crane, job mechanic, concrete pump	EN-324-RC	\$48.40	\$64.68	\$80.96	H H D H D D D D Y
Regular engineer, hydro-excavator, remote controlled concrete breaker	EN-324-RE	\$47.43	\$63.23	\$79.02	H H D H D D D D Y
	<b>Apprentice Rates:</b>				
	Period 1	\$37.85	\$48.90	\$59.96	
	Period 2	\$39.43	\$51.28	\$63.12	
	Period 3	\$41.02	\$53.66	\$66.30	
	Period 4	\$42.59	\$56.01	\$69.44	
	Period 5	\$44.17	\$58.39	\$72.60	
	Period 6	\$45.76	\$60.77	\$75.78	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 10 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Operating Engineer - Marine Construction</b>					
Diver/Wet Tender, Engineer (hydraulic dredge)	GLF-1	\$51.76	\$67.91	\$84.06	X X H H H H H D Y
Holidays paid at \$100.21 per hour					
<i>Subdivision of county</i> all Great Lakes, islands therein, & connecting & tributary waters					
Crane/Backhoe Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender	GLF-2	\$50.26	\$65.66	\$81.06	X X H H H H H D Y
Holidays paid \$96.46 per hour					
<i>Subdivision of county</i> 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	\$46.91	\$60.64	\$74.36	X X H H H H H D Y
Holidays paid at \$88.08 per hour					
<i>Subdivision of county</i> 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	\$42.26	\$53.66	\$65.06	X X H H H H H D Y
Holidays paid at \$76.46 per hour					
<i>Subdivision of county</i> All Great Lakes, islands therein, & connecting & tributary waters					
<b>Operating Engineer Hazardous Waste Class I</b>					
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	\$46.22	\$61.89	\$77.55	H H H H H H H D Y
<b>Apprentice Rates:</b>					
	1st 6 months	\$36.62	\$47.58	\$58.55	
	2nd 6 months	\$38.18	\$49.92	\$61.67	
	3rd 6 months	\$39.75	\$52.28	\$64.81	
	4th 6 months	\$41.31	\$54.62	\$67.93	
	5th 6 months	\$42.89	\$56.99	\$71.09	
	6th 6 months	\$44.45	\$59.33	\$74.21	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 11 of 20

Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision	
Name	Description					
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	\$45.27	\$60.46	\$75.65	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st 6 months		\$35.95	\$46.59	\$57.21	
	2nd 6 months		\$37.48	\$48.88	\$60.27	
	3rd 6 months		\$39.00	\$51.16	\$63.31	
	4th 6 months		\$40.52	\$53.44	\$66.35	
	5th 6 months		\$42.04	\$55.72	\$69.39	
	6th 6 months		\$43.56	\$58.00	\$72.43	
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.		EN-324-HWCI-Z1D	\$43.97	\$58.51	\$73.05	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st 6 months		\$35.05	\$45.23	\$55.41	
	2nd 6 months		\$36.51	\$47.43	\$58.33	
	3rd 6 months		\$37.95	\$49.58	\$61.21	
	4th 6 months		\$39.42	\$51.79	\$64.15	
	5th 6 months		\$40.86	\$53.95	\$67.03	
	6th 6 months		\$42.32	\$56.13	\$69.95	
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.		EN-324-HWCI-Z1DCL	\$43.72	\$58.14	\$72.55	H H H H H H H D Y
<b>Apprentice Rates:</b>						
	1st 6 months		\$34.87	\$44.96	\$55.05	
	2nd 6 months		\$36.31	\$47.12	\$57.93	
	3rd 6 months		\$37.76	\$49.30	\$60.83	
	4th 6 months		\$39.20	\$51.45	\$63.71	
	5th 6 months		\$40.63	\$53.60	\$66.57	
	6th 6 months		\$42.08	\$55.78	\$69.47	
<b>Operating Engineer Hazardous Waste Class II</b>						
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	\$41.99	\$55.54	\$69.09	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	\$41.04	\$54.12	\$67.19	H H H H H H H D Y

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 12 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1D	\$39.74	\$52.17	\$64.59	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	\$39.49	\$51.79	\$64.09	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Crane w/ Boom &amp; Jib leads 140' or longer</b>					
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	\$48.87	\$65.86	\$82.85	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	\$47.92	\$64.44	\$80.95	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	\$46.62	\$62.49	\$78.35	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	\$46.37	\$62.11	\$77.85	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Crane w/ Boom &amp; Jib leads 220' or longer</b>					
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	\$49.17	\$66.31	\$83.45	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	\$48.22	\$64.89	\$81.55	H H H H H H H D Y
Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW220-Z1D	\$46.92	\$62.94	\$78.95	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	\$46.67	\$62.56	\$78.45	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, and Concrete Pump with Boom Operator</b>					
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1D	\$44.94	\$59.97	\$74.99	H H H H H H H D Y

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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



# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 13 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom</b>					
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1DCL	\$44.07	\$58.66	\$73.25	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with booms</b>					
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	\$46.24	\$61.92	\$77.59	H H H H H H H D Y
<b>Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operators and Concrete Pump with booms</b>					
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	\$47.19	\$63.34	\$79.49	H H H H H H H D Y
<b>Operating Engineer Steel Work</b>					
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
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

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 14 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Crane Operator & Job Mechanic	EN-324-SWCO	\$51.15	\$69.26	\$87.36	H H D H H H D D Y
	<b>Apprentice Rates:</b>				
	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
<b>Operating Engineer Underground</b>					
Class I Equipment	EN-324A1-UC1	\$44.84	\$59.33	\$73.82	H H H H H H H D Y
	<b>Apprentice Rates:</b>				
	0-999 hours	\$36.05	\$46.20	\$56.34	
	1,000-1,999 hours	\$37.50	\$48.37	\$59.24	
	2,000-2,999 hours	\$38.94	\$50.53	\$62.12	
	3,000-3,999 hours	\$40.39	\$52.71	\$65.02	
	4,000-4,999 hours	\$41.84	\$54.88	\$67.92	
	5,000-5,999 hours	\$43.29	\$57.06	\$70.82	
Class II Equipment	EN-324A1-UC2	\$40.11	\$52.24	\$64.36	H H H H H H H D Y
Class III Equipment	EN-324A1-UC3	\$39.38	\$51.14	\$62.90	H H H H H H H D Y
Class IV Equipment	EN-324A1-UC4	\$38.81	\$50.29	\$61.76	H H H H H H H D Y
Master Mechanic	EN-324A1-UMM	\$45.09	\$59.71	\$74.32	H H H H H H H D Y

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 15 of 20

Classification		Straight	Time and	Double			
Name	Description	Hourly	a Half	Time	Overtime Provision		
<b>Painter</b>							
	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	
	<b>Apprentice Rates:</b>						
	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, overpasses, 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	
<b>Pipefitter</b>							
	Pipefitter	PF-636	\$55.06	\$74.14	\$89.96	H H D H D D D D N	
	<b>Apprentice Rates:</b>						
	1st & 2nd periods		\$26.28	\$34.63	\$41.63		
	3rd period		\$28.28	\$37.63	\$45.63		
	4th period		\$29.53	\$39.51	\$48.13		
	5th period		\$30.78	\$41.38	\$50.63		
	6th period		\$32.03	\$43.25	\$53.13		
	7th period		\$33.28	\$45.13	\$55.63		
	8th period		\$34.28	\$46.63	\$57.63		
	9th period		\$35.28	\$48.13	\$59.63		
	10th period		\$36.71	\$50.27	\$62.49		
<b>Plasterer</b>							
	Plasterer	BR1P	\$42.89	\$64.34	\$85.78	H H H H H H H D N	
	<b>Apprentice Rates:</b>						
	1st 6 months		\$21.97	\$32.96	\$43.94		
	2nd 6 months		\$25.46	\$38.19	\$50.92		
	3rd 6 months		\$28.95	\$43.42	\$57.90		
	4th 6 months		\$32.43	\$48.65	\$64.86		
	5th 6 months		\$35.92	\$53.88	\$71.84		
	6th 6 months		\$39.40	\$59.10	\$78.80		

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 16 of 20

Classification			Straight	Time and	Double		
Name	Description		Hourly	a Half	Time	Overtime Provision	
Plasterer		PL67	\$42.87	\$58.16	\$73.45	H H H	X D D D D N
		<b>Apprentice Rates:</b>					
		1st 6 months	\$24.52	\$30.63	\$36.75		
		2nd 6 months	\$27.58	\$35.23	\$42.87		
		3rd 6 months	\$30.64	\$39.81	\$48.99		
		4th 6 months	\$33.70	\$44.41	\$55.11		
		5th 6 months	\$36.75	\$48.98	\$61.21		
		6th 6 months	\$39.81	\$53.57	\$67.33		
<b>Plumber</b>							
Plumber		PL-98	\$53.68	\$71.45	\$87.21	H H D	H D D D D Y
		<b>Apprentice Rates:</b>					
		Period 1	\$17.11	\$23.41	\$29.71		
		Period 2	\$17.11	\$23.41	\$29.71		
		Period 3	\$26.78	\$35.13	\$43.47		
		Period 4	\$27.41	\$36.07	\$44.73		
		Period 5	\$28.57	\$37.81	\$47.05		
		Period 6	\$29.72	\$39.53	\$49.35		
		Period 7	\$30.87	\$41.26	\$51.65		
		Period 8	\$32.04	\$43.01	\$53.99		
		Period 9	\$33.19	\$44.74	\$56.29		
		Period 10	\$34.35	\$46.48	\$58.61		
<b>Roofer</b>							
Commercial Roofer		RO-149-WOM	\$46.81	\$60.92	\$75.02	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.							
		<b>Apprentice Rates:</b>					
		Apprentice 1	\$30.97	\$39.16	\$47.34		
		Apprentice 2	\$35.15	\$43.42	\$51.70		
		Apprentice 3	\$36.57	\$45.56	\$54.54		
		Apprentice 4	\$37.60	\$47.10	\$56.60		
		Apprentice 5	\$38.82	\$48.93	\$59.04		
		Apprentice 6	\$40.22	\$51.03	\$61.84		
<b>Sheet Metal Worker</b>							
Sheet Metal Worker		SHM-80	\$55.37	\$73.66	\$91.95	H H D	H D D D D Y
		<b>Apprentice Rates:</b>					
		First Year	\$36.96	\$46.34	\$55.71		
		Second Year	\$38.37	\$48.45	\$58.53		
		Third Year	\$39.80	\$50.60	\$61.39		
		Fourth Year	\$42.65	\$54.87	\$67.09		
		Fifth Year	\$45.52	\$59.18	\$72.83		

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 17 of 20

Classification Name Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Siding & Decking	SHM-80-SD	\$37.10	\$49.16	\$61.22	H H H H H H H D Y
<b>Sprinkler Fitter</b>					
Sprinkler Fitter	SP 704	\$55.92	\$75.26	\$94.60	H H D H D D D D Y
	<b>Apprentice Rates:</b>				
	1st Period	\$22.82	\$30.55	\$38.29	
	2nd Period	\$34.65	\$43.36	\$52.06	
	3rd Period	\$36.58	\$46.25	\$55.92	
	4th Period	\$38.51	\$49.14	\$59.78	
	5th Period	\$40.45	\$52.06	\$63.66	
	6th Period	\$42.38	\$54.95	\$67.52	
	7th Period	\$44.32	\$57.86	\$71.40	
	8th Period	\$46.25	\$60.76	\$75.26	
	9th Period	\$48.18	\$63.65	\$79.12	
	10th Period	\$50.12	\$66.56	\$83.00	
<b>Terrazzo</b>					
Terrazzo Finisher	TT32-TRF	\$39.97	\$50.50	\$61.03	H H D H D D D D N
	<b>Apprentice Rates:</b>				
	Level 1	\$20.29	\$26.40	\$32.50	
	Level 2	\$21.00	\$27.46	\$33.92	
	Level 3	\$24.60	\$31.17	\$37.73	
	Level 4	\$25.94	\$33.17	\$40.41	
	Level 5	\$27.31	\$34.76	\$42.20	
	Level 6	\$28.78	\$36.40	\$44.02	
	Level 7	\$30.32	\$38.32	\$46.32	
	Level 8	\$31.68	\$39.94	\$48.20	
Terrazzo Worker	TT32-TRW	\$45.29	\$58.48	\$71.67	H H D H D D D D N
	<b>Apprentice Rates:</b>				
	Level 1	\$24.76	\$31.75	\$38.73	
	Level 2	\$27.55	\$35.28	\$43.01	
	Level 3	\$30.40	\$38.42	\$46.44	
	Level 4	\$32.90	\$41.81	\$50.72	
	Level 5	\$35.00	\$44.31	\$53.61	
	Level 6	\$38.34	\$49.13	\$59.91	
	Level 7	\$39.44	\$50.63	\$61.83	
	Level 8	\$40.29	\$51.91	\$63.53	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 18 of 20

Classification			Straight	Time and	Double		
Name	Description		Hourly	a Half	Time	Overtime Provision	
<b>Tile</b>							
Tile Finisher		TT32-TF	\$39.59	\$49.93	\$60.27	H H D	H D D D D N
		<b>Apprentice Rates:</b>					
		Level 1	\$19.20	\$24.76	\$30.32		
		Level 2	\$20.30	\$26.41	\$32.52		
		Level 3	\$24.57	\$31.12	\$37.67		
		Level 4	\$25.91	\$33.13	\$40.35		
		Level 5	\$27.28	\$34.71	\$42.14		
		Level 6	\$28.75	\$36.56	\$44.36		
		Level 7	\$30.29	\$38.15	\$46.01		
		Level 8	\$31.65	\$39.77	\$47.89		
Tile Layer		TT32-TL	\$45.19	\$58.33	\$71.47	H H D	H D D D D N
		<b>Apprentice Rates:</b>					
		Level 1	\$24.76	\$31.75	\$38.73		
		Level 2	\$27.55	\$35.28	\$43.01		
		Level 3	\$30.40	\$38.42	\$46.44		
		Level 4	\$32.90	\$41.81	\$50.72		
		Level 5	\$34.95	\$44.10	\$53.26		
		Level 6	\$38.29	\$49.05	\$59.81		
		Level 7	\$38.89	\$49.81	\$60.73		
		Level 8	\$39.74	\$51.09	\$62.43		
<b>Truck Driver</b>							
on all trucks of 8 cubic yard capacity or less		TM-RB1	\$34.76	\$36.44		H H H H H H H H	Y
of all trucks of 8 cubic yard capacity or over		TM-RB1A	\$34.86	\$36.59		H H H H H H H H	Y
on euclid type equipment		TM-RB1B	\$35.01	\$36.81		H H H H H H H H	Y
<b>Underground Laborer Open Cut, Class I</b>							
Construction Laborer		LAUC-Z1-1	\$33.39	\$44.07	\$54.75	H H H H H H H H	H D Y
		<b>Apprentice Rates:</b>					
		0-1,000 work hours	\$28.59	\$36.87	\$45.15		
		1,001-2,000 work hours	\$29.55	\$38.31	\$47.07		
		2,001-3,000 work hours	\$30.51	\$39.75	\$48.99		
		3,001-4,000 work hours	\$32.43	\$42.63	\$52.83		

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 19 of 20

Classification		Straight	Time and	Double	Overtime	Provision
Name	Description	Hourly	a Half	Time		
<b>Underground Laborer Open Cut, Class II</b>						
	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.	\$33.50	\$44.24	\$54.97	H H H H H H H D	Y
	LAUC-Z1-2					
	<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.68	\$37.01	\$45.33		
	1,001-2,000 work hours	\$29.64	\$38.45	\$47.25		
	2,001-3,000 work hours	\$30.60	\$39.89	\$49.17		
	3,001-4,000 work hours	\$32.54	\$42.80	\$53.05		
<b>Underground Laborer Open Cut, Class III</b>						
	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.	\$33.55	\$44.31	\$55.07	H H H H H H H D	Y
	LAUC-Z1-3					
	<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.71	\$37.05	\$45.39		
	1,001-2,000 work hours	\$29.68	\$38.51	\$47.33		
	2,001-3,000 work hours	\$30.65	\$39.97	\$49.27		
	3,001-4,000 work hours	\$32.58	\$42.86	\$53.13		
<b>Underground Laborer Open Cut, Class IV</b>						
	Trench or excavating grade man.	\$33.63	\$44.43	\$55.23	H H H H H H H D	Y
	LAUC-Z1-4					
	<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.77	\$37.15	\$45.51		
	1,001-2,000 work hours	\$29.74	\$38.60	\$47.45		
	2,001-3,000 work hours	\$30.72	\$40.07	\$49.41		
	3,001-4,000 work hours	\$32.66	\$42.98	\$53.29		
<b>Underground Laborer Open Cut, Class V</b>						
	Pipe Layer	\$33.69	\$44.52	\$55.35	H H H H H H H D	Y
	LAUC-Z1-5					
	<b>Apprentice Rates:</b>					
	0-1,000 work hours	\$28.82	\$37.22	\$45.61		
	1,001-2,000 work hours	\$29.79	\$38.67	\$47.55		
	2,001-3,000 work hours	\$30.77	\$40.15	\$49.51		
	3,001-4,000 work hours	\$32.72	\$43.07	\$53.41		

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 County: Oakland

## Official Rate Schedule

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

# Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 2/13/2008

Contract must be awarded by 5/13/2008

Page 20 of 20

Classification		Straight	Time and	Double	
Name	Description	Hourly	a Half	Time	Overtime Provision
<b>Underground Laborer Open Cut, Class VI</b>					
	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 and the installation and repair of water service pipe and appurtenances.	\$31.14	\$40.70	\$50.25	H H H H H H H D Y
	<b>Apprentice Rates:</b>				
	0-1,000 work hours	\$26.90	\$34.34	\$41.77	
	1,001-2,000 work hours	\$27.75	\$35.61	\$43.47	
	2,001-3,000 work hours	\$28.60	\$36.89	\$45.17	
	3,001-4,000 work hours	\$30.29	\$39.43	\$48.55	
<b>Underground Laborer Open Cut, Class VII</b>					
	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.	\$27.76	\$35.63	\$43.49	H H H H H H H D Y
	<b>Apprentice Rates:</b>				
	0-1,000 work hours	\$24.37	\$30.55	\$36.71	
	1,001-2,000 work hours	\$25.05	\$31.57	\$38.07	
	2,001-3,000 work hours	\$25.73	\$32.59	\$39.43	
	3,001-4,000 work hours	\$27.08	\$34.61	\$42.13	

Official Request #: 206  
 Requestor: TROY SCHOOL DISTRICT  
 Project Description: TECHNOLOGY RENOVATIONS  
 Project Number: INTERNATIONAL ACADEMY EAST  
 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.





**Integrated Design  
Solutions**

888 W. Big Beaver, Ste. 200  
Troy, MI 48084  
tel 248.823.2100  
fax 248.823.2200

## **ADDENDUM NO. 2**

Issue Date: February 29, 2008

Project Name: Troy School District  
International Academy East  
Technology Renovations  
TSD Bid No. 9492

IDS Project No.: 03234-1000 BP27

This Addendum is issued prior to receipt of bids in order to modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections. Bidders are to indicate receipt of this Addendum in the space provided on the Bid Form.

### **NEW OR REVISED DOCUMENTS ISSUED WITH THIS ADDENDUM**

Project Manual Documents: N/A

Drawings: N/A

Sketches: ADD-2/T1 and ADD-2/T2

### **PROJECT MANUAL DOCUMENTS DELETED OR REVISED BUT NOT ISSUED**

- Item No. 1 Refer to the Specification Section 00410, Page 3.
- A. Correct UP-11D to read:
- “Labor cost per hour for cable abatement beyond the fifty (50) hour allotment included with Base Bid.”
- Item No. 2 Refer to Specification Section 16790, Page 7, Paragraph 3.2.C.
- A. Correct to read “Include as part of your base bid price an allowance of fifty (50) hours for the abatement of miscellaneous cabling . . .”
- Item No. 3 Refer to Specification Section 16795, Page 9, Paragraph 2.9.F.
- A. Correct to read “. . . and continuously flash the word “FIRE” on the alpha numeric displays and shall flash the word “FIRE” on the TV’s.”
- Item No. 4 Refer to Specification Section 16795, Page 18, Paragraph 2.25.
- A. Correct to read “VIDEO SPLITTER (EXISTING and PROPOSED SYSTEMS).”

Addendum No. 2  
IDS Project No. 03234-1000 BP 27  
February 29, 2008  
Page 2

Item No. 5                      Refer to Specification Section 16795, Page 25, Paragraph 3.5.G.

A.    Strike in its entirety.

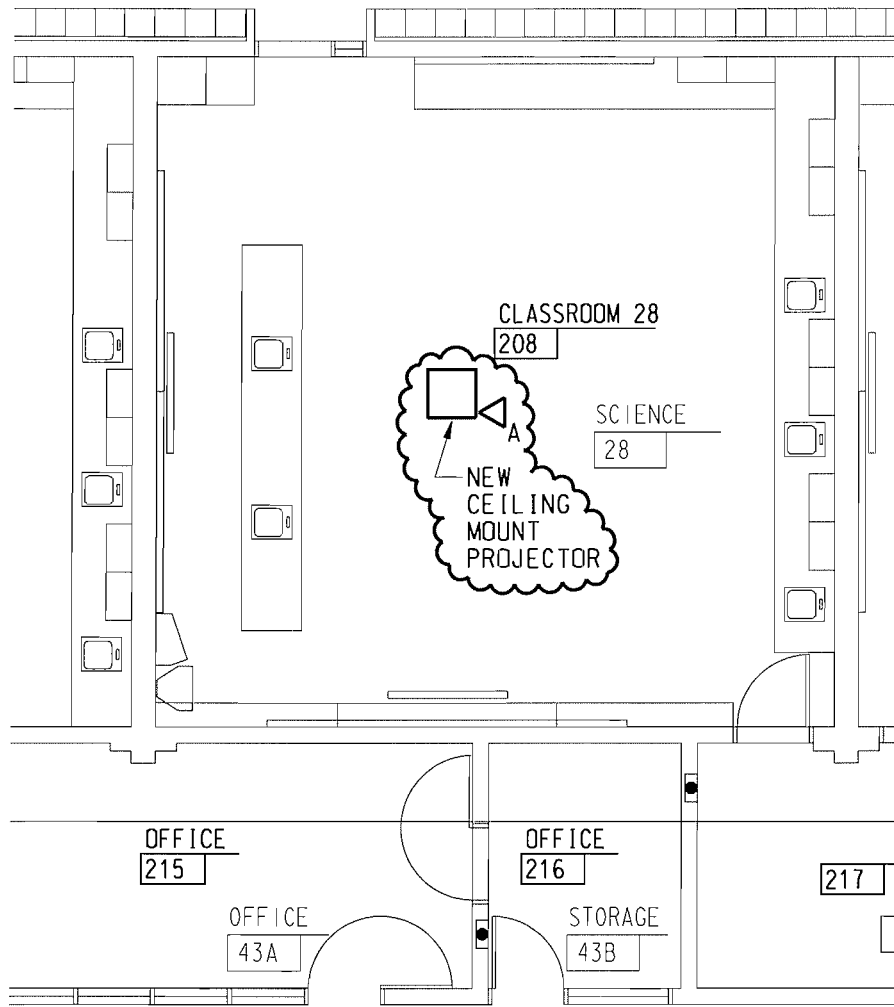
**DRAWINGS DELETED OR REVISED BUT NOT ISSUED**

Item No. 1                      None

cc:    File

ec:    S. Bryan, TSD  
      F. Lams, TSD  
      R. Bracci, ids

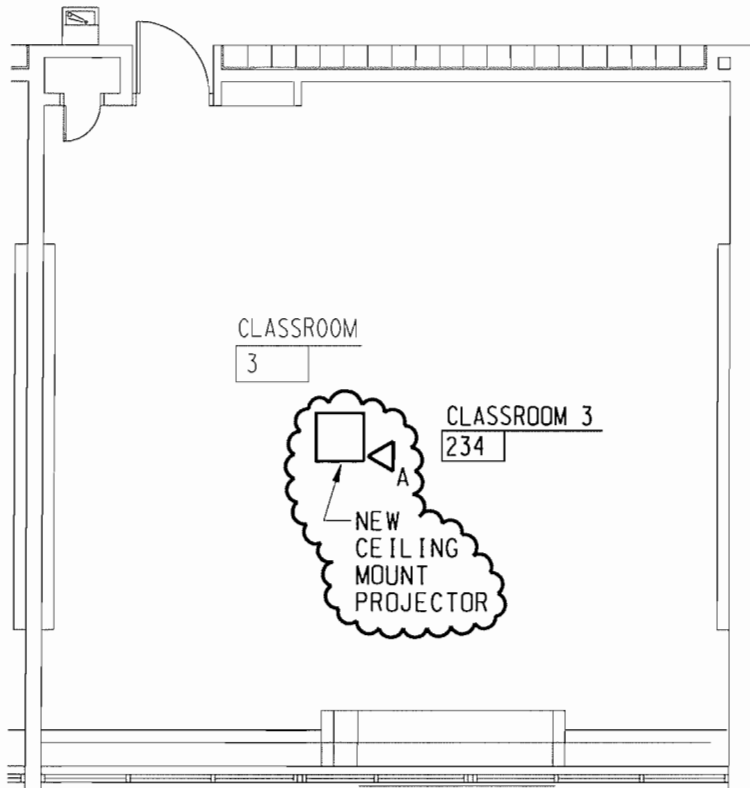
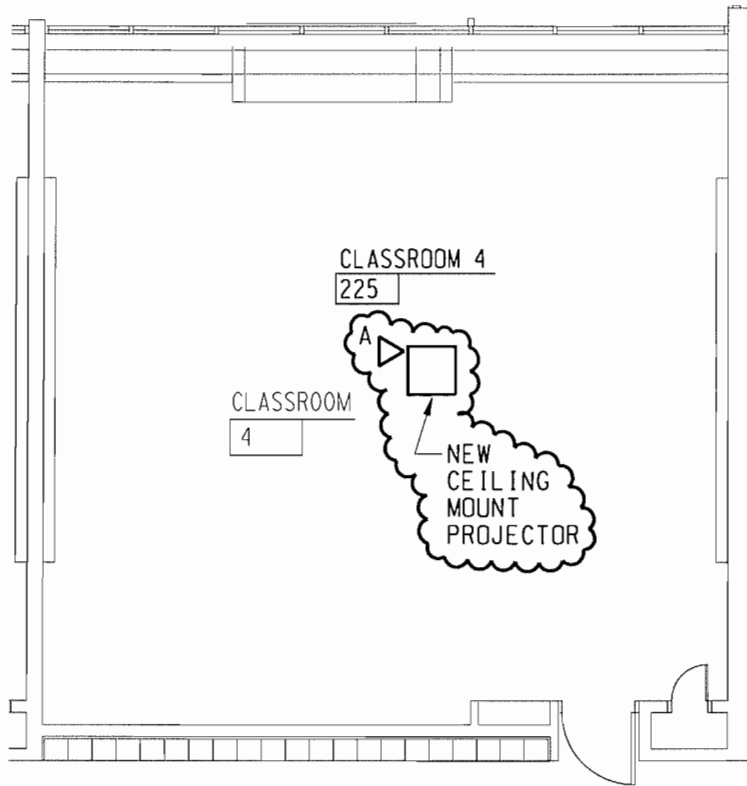
f:\2003\03234\1000\spec\bp27 - iae\add002.docx



**Integrated Design Solutions, LLC**  
 Architecture, Engineering, Interiors & Technology

Project		Project No	
International Academy East Technology Renovations - TSD Bid No. 9492		03234-1000 BP27	
Date	Issued For	Ref Dwg	Sketch No
2-29-08	Addendum No. 2	E3.2	ADD-2/T1

© 2007 Integrated Design Solutions, LLC



**Integrated Design Solutions, LLC**  
 Architecture, Engineering, Interiors & Technology

**Project**  
 International Academy East  
 Technology Renovations - TSD Bid No. 9492

**Project No**  
 03234-1000 BP27

**Date** 2-29-08  
**Issued For** Addendum No. 2

**Ref Dwg**  
 E3.2

**Sketch No**  
 ADD-2/T2



# BID TABULATION FORM

Project Name: Troy School District  
 International Academy East  
 Technology Renovations  
 TSD Bid No. 9492  
 IDS Project No.: 03234-1000 BP27

Date: March 4, 2008

Estimate:

	Digital Age Technologies, Inc.	Bidder 2	Bidder 3	Bidder 4	Bidder 5	Bidder 6
<b>Bid Bond</b>	Yes					
<b>Addendum</b>	1 & 2					
<b>Familiar Disclosure</b>	Yes					
<b>Base Bid</b>	\$157,700.00					

Base Bid Breakdown

Section 16740 - Wireless Equip.  
 Section 16790 - Telephone & Data  
 Section 16795 - Voice & Video  
 Bid Bond Cost

\$54,168.00					
\$30,328.00					
\$70,804.00					
\$2,400.00					

Mandatory Alternates

None

n/a	n/a	n/a	n/a	n/a	n/a
-----	-----	-----	-----	-----	-----

Voluntary Alternates

V1. Voluntary Alternate No. 1  
 V2. Voluntary Alternate No. 2

n/a					
n/a					

cc: File

ec: M. Adamczak, TSD    S. Bryan, TSD    F. Lams, TSD  
 R. Bracci, ids    R. Killips, ids

888 West Big Beaver, Suite 200 ● Troy, Michigan 48084 ● Phone: (248) 823-2100 ● Fax: (248) 823-2200