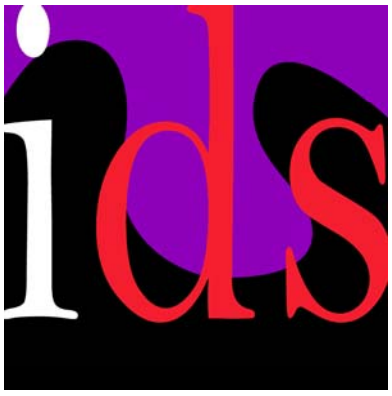

Integrated Design Solutions

architecture engineering interiors & technology

Project Manual

Troy School District
School Technology Systems
Administration Building Renovations
TSD Bid No. 9474

IDS Project No. 03234-2004 BP28

December 10, 2007
Bids

Project Manual

Troy School District
School Technology Systems
Administration Building Renovations
TSD Bid No. 9474

For The

Troy School District
4400 Livernois
Troy, Michigan 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

TSD Bid No. 9474
IDS Project No. 03234-2004 BP28

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END OF TABLE OF CONTENTS

SECTION 00100 - ADVERTISEMENT FOR BIDS

DATE: December 10, 2007

PROJECT: Troy School District
School Technology Systems
Administration Building Renovations
TSD Bid No. 9474
Troy, Michigan

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

ENGINEER/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 December 27, 2007, 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

Bidders are strongly encouraged to hand deliver their bids because of potential delivery company delays due to the holidays.

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 December 10, 2007, 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

The offices of: Integrated Design Solutions, LLC, 888 W. Big Beaver, Suite 200, Troy, Michigan 48084, (248) 823-2100.
Construction Association of Michigan, 43636 Woodward Ave., Bloomfield Hills, Michigan 48302, (248) 972-1000.
Plan Room, McGraw Hill Construction, 20475 Woodingham Dr., Detroit, Michigan, 48221, (313) 342-6449.

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

A recommended pre-bid conference is scheduled for December 19, 2007, at 9:00 am local time. All Bidders are responsible for attendance at the pre-bid conference. Bidders shall meet at the Troy School District Services Building, 4420 Livernois, Troy, Michigan, 48098 in Conference Room B.

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 Engineer/Technology Designer 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 to award a bid that is determined to be in the Owner's best interest.

Immediately following the pre-bid conference, the Owner will make available representative school buildings for Bidders to examine site and local conditions. Interested Bidders shall meet with the Owner and Owner's Representatives in the main office of each building according to the following schedule:

10:00 am Administration Building 4400 Livernois

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. **Bidders are strongly encouraged to hand deliver their bids because of potential shipping company delays due to the holidays.**

1. Enclose each Bid in a sealed opaque envelope bearing the title of the work Administration Building Renovations, TSD Bid No. 9474, 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 and signed by 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 an 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 the 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. The bidding schedule is as follows:

Bids Available:	December 10, 2007
Pre-bid Conference and Site Visits:	December 19, 2007, 9:00 am
Deadline for RFI Submissions:	December 20, 2007, 12:00 pm
Deadline for RFI Responses and Addenda:	December 21, 2007, 5:00 pm
Bids Due:	December 27, 2007, 3:00 pm
Bid Opening:	December 27, 2007, 3:01 pm
Post Bid Interviews:	January 3 and 4, 2008
Bid Award:	January 15, 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 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. 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.

17. 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.

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.

ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS

CLASS I

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.

CLASS II

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.

CLASS III

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).

CLASS IV

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.

HAZARDOUS WASTE ABATEMENT ENGINEERS

CLASS I

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.

CLASS II

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.

Regular Crane Operators rate shall include: Mechanics, Crane Operators, Dragline Operators, Boom Truck Operators, Power Shovel Operators and Concrete Pumps with booms.

Revised: 09/07/06

MICHIGAN DEPARTMENT OF LABOR & ECONOMIC GROWTH
WAGE & HOUR DIVISION

OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE SCHEDULE

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

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

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

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

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

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

2. Overtime Indicators Used in the Overtime Provision:

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

3. EXAMPLES:

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

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

State of Michigan
Department of Labor and Economic Growth

Wage and Hour Division
6546 Mercantile Way, Suite 5
PO Box 30476
Lansing, MI 48909-7976
Telephone: 517-335-0400
Fax: 517-335-0077
www.michigan.gov/wagehour

Official Request 1318
Requestor: Troy School District

Project Description: Technology Upgrade
Project Number: Administration Building

Oakland County

Official 2007 Prevailing Wage Rates for State Funded Projects

Issue Date: 12/7/2007
Contract must be awarded by 3/6/2008

Classification Name	Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Asbestos & Lead Abatement Laborer						
Asbestos & Lead Abatement Laborer		MLDC	$32.65	$43.39	$54.13	H H H X X X X D Y
Asbestos & Lead Abatement, Hazardous Material Handler						
Asbestos and Lead Abatement, Hazardous Material Handler		AS207	$32.65	$44.75	$56.85	H H H X X X X D Y
Boilermaker						
Boilermaker		BO169	$51.27	$76.00	$100.74	H H H H H H H D Y
	Apprentice Rates:					
	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	
Bricklayer						
Bricklayer, stone mason, pointer, cleaner, caulker		BR1	$47.76	$71.64	$95.52	H H D H D D D D N
	Apprentice Rates:					
	First 6 months		$30.33	$45.50	$60.66	
	2nd 6 months		$32.21	$48.32	$64.42	
	3rd 6 months		$34.10	$51.15	$68.20	
	4th 6 months		$35.98	$53.97	$71.96	
	5th 6 months		$37.86	$56.79	$75.72	
	6th 6 months		$39.73	$59.60	$79.46	

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Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Carpenter					
Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)	CA1045	$40.22	$56.42	$72.61	H H H H D D D D N
Apprentice Rates:					
1st 6 months		$20.93	$25.25	$31.05	
2nd 6 months		$24.02	$31.26	$39.07	
3rd 6 months		$25.64	$33.59	$42.17	
4th 6 months		$27.26	$35.95	$45.33	
5th 6 months		$28.87	$38.28	$48.43	
6th 6 months		$30.50	$40.64	$51.57	
7th 6 months		$32.11	$42.96	$54.67	
8th 6 months		$33.73	$45.30	$57.79	
Carpenter, piledriver	CA687Z1	$44.37	$62.97	$81.56	H H D H D D D D Y
Apprentice Rates:					
1st Year		$27.63	$37.85	$48.08	
3rd 6 months		$29.49	$40.65	$51.80	
4th 6 months		$31.34	$43.42	$55.50	
5th 6 months		$33.21	$46.23	$59.24	
6th 6 months		$35.08	$49.03	$62.98	
7th 6 months		$36.92	$51.79	$66.66	
8th 6 months		$38.80	$54.61	$70.42	
Cement Mason					
Cement Mason	CE514	$43.95	$61.87	$79.78	H H D H H H H D N
Apprentice Rates:					
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	
Drywall					
Drywall Taper	PT-22-D	$38.45	$50.90	$63.35	H H D H D D D D N
Apprentice Rates:					
First 3 months		$26.00	$32.23	$38.45	
Second 3 months		$28.49	$35.96	$43.43	
Second 6 months		$30.98	$39.69	$48.41	
Third 6 months		$33.47	$43.43	$53.39	
4th 6 months		$34.71	$45.29	$55.87	

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Classification Name / Description			Straight Hourly	Time and a Half	Double Time	Overtime Provision
Electrician						
Road Way Electrical Work Double time due after 16 hours on any calendar day and all hours Sunday.		EC-17	$45.37	$65.63	$85.90	H H H H H H H D Y
	Apprentice Rates:					
	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	
Subdivision of county	Holly not included					
Inside Wireman		EC-58-IW	$46.88	$64.00	$81.13	H H H H H H H D N
	Apprentice Rates:					
	0-1000 hours		$26.33	$33.18	$40.03	
	1000-2000 hours		$28.04	$35.75	$43.45	
	2000-3500 hours		$29.75	$38.31	$46.87	
	3500-5000 hours		$31.47	$40.90	$50.31	
	5000-6500 hours		$34.89	$46.03	$57.15	
	6500-8000 hours		$38.32	$51.17	$64.01	
Sound and Communication Installer/Technician		EC-58-SC	$29.33	$41.30	$53.26	H H H H H H H D N
	Apprentice Rates:					
	Period 1		$17.16	$23.04	$28.93	
	Period 2		$18.38	$24.88	$31.37	
	Period 3		$19.59	$26.69	$33.79	
	Period 4		$20.81	$28.53	$36.23	
	Period 5		$22.02	$30.33	$38.65	
	Period 6		$23.24	$32.17	$41.09	
Elevator Constructor						
Elevator Constructor Elevator Constructor		EL 36	$56.46		$94.99	D D D D D D D D Y
	Apprentice Rates:					
	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	

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Classification Name	Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Glazier						
Glazier		GL-357	$41.56	$55.41		H H H H H H H H Y
	Apprentice Rates:					
	1st 6 months		$28.36	$35.29		
	2nd 6 months		$29.82	$37.44		
	3rd 6 months		$32.72	$41.72		
	4th 6 months		$34.18	$43.87		
	5th 6 months		$35.64	$46.03		
	6th 6 months		$37.09	$48.17		
	7th 6 months		$38.54	$50.31		
	8th 6 months		$41.46	$54.62		
Heat and Frost Insulator						
Spray Insulation		AS25S	$20.14	$29.14		H H H H H H H H N
Heat and Frost Insulator and Asbestos Worker						
Heat and Frost Insulators and Asbestos Workers		AS25	$48.20	$62.86	$77.52	H H H H H H H D Y
	Apprentice Rates:					
	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	
Ironworker						
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
	Apprentice Rates:					
	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

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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, converyor, fence, glazing, reinforced, rigging, & siding decking	IR-25-STR	$54.11	$80.88	$107.65	H H D H H H D D Y
Apprentice Rates:					
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
Laborer					
Construction Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Demolition Laborer	L1076-A-A	$37.62	$53.35	$69.07	H H D H D D D D Y
Apprentice Rates:					
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

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Plasterer Tender, Plastering Machine Operator	LPT-1	$39.00	$55.42	$71.83	H H D H D D D D N
Apprentice Rates:					
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	
Laborer - Hazardous					
Class A Laborer - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulations; or a laborer performing work in conjunction with the removal, handling, or containment of hazardous waste substances when used of personal protective equipment level "D" is required.	LHAZ-Z2-A	$37.62	$53.35	$69.07	H H H H H H H D Y
Apprentice Rates:					
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
Apprentice Rates:					
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	
Laborer Underground - Tunnel, Shaft & Caisson					
Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	LAUCT-Z1-1	$33.54	$44.30	$55.05	H H H H H H H D Y
Apprentice Rates:					
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	

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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
Apprentice Rates:					
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
Apprentice Rates:					
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
Apprentice Rates:					
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
Apprentice Rates:					
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	

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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
Apprentice Rates:					
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
Apprentice Rates:					
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	
Landscape Laborer					
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
Marble Finisher					
Marble Finisher	TT32-MF	$39.57	$49.90	$60.23	H H D H D D D D N
Apprentice Rates:					
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	

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Marble Mason					
Marble Mason	TT32-MM	$45.76	$59.19	$72.61	H H D H D D D D N
Apprentice Rates:					
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	
Operating Engineer					
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
Apprentice Rates:					
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	

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Operating Engineer - Marine Construction					
Diver/Wet Tender, Engineer (hydraulic dredge)	GLF-1	$49.29	$64.74	$80.19	X X H H H H H H D Y
Holidays paid at $95.64 per hour					
Subdivision of county	all Great Lakes, islands therein, & connecting & tributary waters				
Crane/Backhoe Operator, Mechanic/Welder, Assistant Engineer (hydraulic dredge), Leverman (hydraulic dredge), Diver Tender	GLF-2	$47.79	$62.49	$77.19	X X H H H H H H D Y
Holidays paid $91.89 per hour					
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters				
Deck Equipment Operator, Machineryman, Maintenance of Crane (over 50 ton capacity) or Backhoe (115,000 lbs. or more), Tug/Launch Operator, Loader, Dozer and like equipment on Barge, Breakwater Wall, Slip/Doc or Scow, Deck Machinery	GLF-3	$44.59	$57.69	$70.79	X X H H H H H H D Y
Holidays paid at $83.89 per hour					
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters				
Deck Equipment Operator, (Machineryman/Fireman), (4 equipment units or more), Deck Hand, Deck Engineer, & Crane Maintenance 50 ton capacity and under or Backhoe weighing 115,000 lbs or less, Assistant Tug Operator	GLF-4	$40.19	$51.09	$61.99	X X H H H H H H D Y
Holidays paid at $72.89 per hour					
Subdivision of county	All Great Lakes, islands therein, & connecting & tributary waters				
Operating Engineer Hazardous Waste Class I					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWCI-Z1A	$46.22	$61.89	$77.55	H H H H H H H D Y
Apprentice Rates:					
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	

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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
Apprentice Rates:					
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
Apprentice Rates:					
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
Apprentice Rates:					
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	
Operating Engineer Hazardous Waste Class II					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWCII-Z1A	$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

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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
Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 140' or longer					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HW140-Z1A	$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
Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 220' or longer					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HW220-Z1A	$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
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, and Concrete Pump with Boom Operator					
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1D	$44.94	$59.97	$74.99	H H H H H H H D Y

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Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom					
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1DCL	$44.07	$58.66	$73.25	H H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with booms					
Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HWRC-Z1B	$46.24	$61.92	$77.59	H H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operators and Concrete Pump with booms					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWRC-Z1A	$47.19	$63.34	$79.49	H H H H H H H D Y
Operating Engineer Steel Work					
Crane w/ 120' boom or longer	EN-324-SW120	$51.51	$69.80	$88.08	H H D H H H D D Y
Crane w/ 120' boom or longer w/ Oiler	EN-324-SW120-O	$52.51	$71.30	$90.08	H H D H H H D D Y
Crane w/ 140' boom or longer	EN-324-SW140	$52.69	$71.57	$90.44	H H D H H H D D Y
Crane w/ 140' boom or longer W/ Oiler	EN-324-SW140-O	$53.69	$73.07	$92.44	H H D H H H D D Y
Boom & Jib 220' or longer	EN-324-SW220	$52.96	$71.97	$90.98	H H D H H H D D Y
Crane w/ 220' boom or longer w/ Oiler	EN-324-SW220-O	$53.96	$73.47	$92.98	H H D H H H D D Y
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

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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
	Apprentice Rates:					
	0-999 hours		$40.04	$52.72	$65.39	
	1,000-1,999 hours		$41.85	$55.43	$69.01	
	2,000-2,999 hours		$43.66	$58.14	$72.63	
	3,000-3,999 hours		$45.48	$60.88	$76.27	
	4,000-4,999 hours		$47.28	$63.58	$79.87	
	5,000 hours		$49.10	$66.31	$83.51	
Crane w/ Oiler		EN-324-SWCO-O	$52.15	$70.76	$89.36	H H D H H H D D Y
Compressor or Welder Operator		EN-324-SWCW	$43.70	$58.08	$72.46	H H D H H H D D Y
Hoisting Operator		EN-324-SWHO	$50.51	$68.30	$86.08	H H D H H H D D Y
Oiler		EN-324-SWO	$42.29	$55.97	$69.64	H H D H H H D D Y
Tower Crane & Derrick where work is 50' or more above first level		EN-324-SWTD50	$52.24	$70.89	$89.54	H H D H H H D D Y
Tower Crane & Derrick 50' or more w/ Oiler where work station is 50' or more above first level		EN-324-SWTD50-O	$53.24	$72.39	$91.54	H H D H H H D D Y
Operating Engineer Underground						
Class I Equipment		EN-324A1-UC1	$44.84	$59.33	$73.82	H H H H H H H D Y
	Apprentice Rates:					
	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

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Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Painter					
Painter (8 hours of repaint work performed on Sunday shall be paid time & one half rate)	PT-22-P	$38.01	$50.24	$62.47	H H D H D D D D N
Apprentice Rates:					
First 6 months		$25.78	$31.89	$38.01	
Second 6 months		$29.45	$37.40	$45.35	
Third 6 months		$30.67	$39.23	$47.79	
Fourth 6 months		$31.89	$41.06	$50.23	
Fifth 6 months		$33.12	$42.91	$52.69	
Final 6 months		$34.34	$44.73	$55.13	
Sandblasting & spraywork performed, on highway bridges, 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
Pipefitter					
Pipefitter	PF-636	$55.06	$74.14	$89.96	H H D H D D D D N
Apprentice Rates:					
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	
Plasterer					
Plasterer	BR1P	$41.92	$62.88	$83.84	H H H H H H H D N
Apprentice Rates:					
1st 6 months		$21.61	$32.41	$43.22	
2nd 6 months		$25.00	$37.50	$50.00	
3rd 6 months		$28.39	$42.59	$56.78	
4th 6 months		$31.83	$47.75	$63.66	
5th 6 months		$35.16	$50.94	$67.92	
6th 6 months		$38.53	$57.80	$77.06	

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Official 2007 Prevailing Wage Rates for State Funded Projects

Issue Date: 12/7/2007

Contract must be awarded by 3/6/2008

Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Plasterer	PL67	$42.87	$58.16	$73.45	H H H X D D D D N
Apprentice Rates:					
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	
Plumber					
Plumber	PL-98	$53.68	$71.45	$87.21	H H D H D D D D Y
Apprentice Rates:					
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	
Roofer					
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.					
Apprentice Rates:					
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	
Sheet Metal Worker					
Sheet Metal Worker	SHM-80	$55.37	$73.66	$91.95	H H D H D D D D Y
Apprentice Rates:					
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	

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Siding & Decking	SHM-80-SD	$37.10	$49.16	$61.22	H H H H H H H D Y
Sprinkler Fitter					
Sprinkler Fitter	SP 704	$55.92	$75.26	$94.60	H H D H D D D D Y
	Apprentice Rates:				
	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	
Terrazzo					
Terrazzo Finisher	TT32-TRF	$39.97	$50.50	$61.03	H H D H D D D D N
	Apprentice Rates:				
	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
	Apprentice Rates:				
	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	

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Classification Name	Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Tile						
Tile Finisher		TT32-TF	$39.59	$49.93	$60.27	H H D H D D D D N
	Apprentice Rates:					
	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
	Apprentice Rates:					
	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	
Truck Driver						
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
Underground Laborer Open Cut, Class I						
Construction Laborer		LAUC-Z1-1	$33.39	$44.07	$54.75	H H H H H H H D Y
	Apprentice Rates:					
	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	

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Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Underground Laborer Open Cut, Class II					
Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.	LAUC-Z1-2	$33.50	$44.24	$54.97	H H H H H H H D Y
	Apprentice Rates:				
	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	
Underground Laborer Open Cut, Class III					
Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodder, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger man, and directional boring man.	LAUC-Z1-3	$33.55	$44.31	$55.07	H H H H H H H D Y
	Apprentice Rates:				
	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	
Underground Laborer Open Cut, Class IV					
Trench or excavating grade man.	LAUC-Z1-4	$33.63	$44.43	$55.23	H H H H H H H D Y
	Apprentice Rates:				
	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	
Underground Laborer Open Cut, Class V					
Pipe Layer	LAUC-Z1-5	$33.69	$44.52	$55.35	H H H H H H H D Y
	Apprentice Rates:				
	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 #: 1318
Requestor: Troy School District
Project Description: Technology Upgrade

Project Number: Administration Building
County: Oakland

Official Rate Schedule

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

Classification Name / Description		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Underground Laborer Open Cut, Class VI					
Grouting man, top man assistant, audio visual television operations and all other operations in connection with closed circuit television inspection, pipe cleaning and pipe relining work and the installation and repair of water service pipe and appurtenances.	LAUC-Z1-6	$31.14	$40.70	$50.25	H H H H H H H D Y
	Apprentice Rates:				
	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	
Underground Laborer Open Cut, Class VII					
Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes, flagstones etc.	LAUC-Z1-7	$27.76	$35.63	$43.49	H H H H H H H D Y
	Apprentice Rates:				
	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 #: 1318
Requestor: Troy School District
Project Description: Technology Upgrade

Project Number: Administration Building
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.

SECTION 00410 - BID FORM

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

PROJECT: Troy School District
School Technology Systems
Administration Building Renovations
TSD Bid No. 9474
Troy, Michigan

ENGINEER/ TECHNOLOGY DESIGNER: 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 Troy School District Contract for Administration Building Renovations, TSD Bid No. 9474 Project in accordance with the Drawings and Specifications prepared by Integrated Design Solutions, LLC dated December 10, 2007, 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 16790 – Data Communications System

Cost of materials, including OH & P $_____

Cost of labor, including OH & P $_____

Total cost for Section 16790 $_____

Section 16795 – Video Communications System

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 ($_____).

Voluntary Alternate No. 3: _____

Add/Deduct _____

_____ Dollars ($_____).

UNIT PRICES – DATA COMMUNICATIONS SYSTEM – SECTION 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.

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

UNIT PRICES – VIDEO COMMUNICATIONS SYSTEM – 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.

		ADD	DEDUCT
UP-1:	Cost to disconnect and remove an existing (demolition) 27" TV, a 27" TV bracket, a set-top box, audio, video and set-top box interconnect 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-2:	Cost to install a 27" TV and 27" TV bracket, patch cables, set top box complete. The TV, TV bracket, patch cables and set top box are the ones placed in storage 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-3:	Cost to disconnect and remove an existing (demolition) 20" TV, a 20" TV bracket, a set-top box, audio, video and set-top box interconnect 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-4:	Cost to install a 20" TV and 20" TV bracket, patch cables, set top box complete. The TV, TV bracket, patch cables and set top box are the ones placed in storage in Item UP No. 3. 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-5:	Cost to disconnect and remove an existing (demolition) 13" TV and associated audio and video interconnect cables. Store off site at Owner's secured location. Include all labor and material and storage costs. Test TV for operation prior to disconnecting. Any TV found non-functioning after reinstallation will be the responsibility of this contractor to make operational. TV's shall be tagged with the room number in which they were removed for installation in the same space.	$_____	$_____

		ADD	DEDUCT
UP-6:	Cost to install a 13" TV and patch cables complete. The TV and patch cables are the ones placed in storage in Item UP No. 5. The TV's 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.	$_____	$_____

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 the general trades awarded under a separate contract.

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

Task	
Technology Demolition	January 16, 2008 – January 25, 2008
Technology Installation	April 21, 2008 – May 2, 2008

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 then 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.

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".

AFFIDAVIT OF BIDDER

The undersigned, the owner or authorized officer of _____ (the "Bidder"), pursuant to the familial disclosure requirement provided in the _____ (the "School District") advertisement for construction bids, hereby represent and warrant, except as provided below, that no familial relationships exist between the 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 _____, 2005, by _____.

_____
, Notary Public
_____ County, Michigan
My Commission Expires:_____
Acting in the County of :_____

END OF BID FORM

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 day of in the year
(In words, indicate day, month and year)

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

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

the Project is:
(Name and location)

00000-00000 Blank Forms

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

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
School Technology Systems
Administration Building Renovations
TSD Bid No. 9474
Troy, Michigan

OWNER: Troy School District
4400 Livernois
Troy, I 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 subparagraph 16.3 and subparagraphs 16.3.1, 16.3.2 and 16.3.3 in their entirety.

20.7 Delete Article 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.

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.

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. LAN and WAN switches are provided by the Owner. However, the data contractor shall provide all fiber and copper patch panels, fiber and copper patch cables, wire management guides and electronic equipment necessary to accept and maintain connectivity to both the LAN and WAN as part of this contract.

C. Telephone handsets and telephone switches shall be provided and installed by the voice communications contractor.

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 appurtances 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.

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: 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, wire, junction boxes, supports, etc., of demolished equipment shall be removed from the utilization equipment back to the source panel or backboard. All associated wiring shall be removed back to the "sources" 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.
4. Conduit accessible above ceilings and/or other location: Remove conduit.

D. Conduit in floor slabs shall be cut 1/2 inch below the floor and patched.

E. 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.

F. 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.

G. Materials salvaged from this work shall not be reused except where reuse is specifically indicated.

H. 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.

I. 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.

END OF SECTION 16015

SECTION 16790 - 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.

1.2 SUMMARY

A. This Specification, in conjunction with the Drawings, establishes the requirements necessary to achieve the intended performance and function of the Data Communications Systems (DCS)

B. The DCS consists of 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 the data system.

D. Provide the services necessary to furnish, install, train, and to provide maintenance to support the DCS 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 DCS complete and in satisfactory operating condition, excluding those items listed under “Work by Others.”

E. The DCS shall be comprised of new and existing 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 DCS includes providing, testing, removing, storing, reinstalling and integrating the following principal systems:

1. Data Distribution Equipment
2. Data Wiring
3. LAN Hardware
4. Power over Ethernet (POE) Devices
5. Ethernet Switches
6. Wireless Access Points
7. Training

H. Furnish and install a DCS 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.

J. 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 District is having extensive ceiling and HVAC renovation work completed under a separate contract. The administration building is currently wired with category 5/5e cabling for data. In addition to the wired data network, the administration building is configured for wireless network connectivity. The administration building utilizes a traditional analog phone system for voice communications, which is being upgraded to a digital VoIP phone system under a separate contract.

B. This contract consists of relocating the MDF closet from its existing location to the data processing center, extending the existing 6 strand single mode fiber cable by fusion splice from the existing MDF to the new MDF location, removing all existing data and phone cabling back to the source, abating all existing abandoned low voltage cabling located within the ceiling spaces (RF, alarm and HVAC automation cabling to remain), testing, removing, storing and reinstalling existing wireless access points, and install, test and tag new category 6 cabling for data and the new VoIP telephone system.

C. The administration building has two (2) existing telecommunications closets. Each closet has existing LAN and WAN switches of sufficient quantities to support the existing wired and wireless data network. Provide as part of this contract additional PoE network switches to support the new VoIP telephone handsets being provided and installed under a separate contract.

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 DCS Contractor, this includes the 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 DCS 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 WIRING

A. Description of System:

1. The DCS shall include providing complete operational and tested data wiring to support the data infrastructure and the new VoIP telephone infrastructure in the administration building. Relocate the MDF closet to the Data Processing Center. Provide, install, test and tag data drops for computers, printers, VoIP handsets, wireless access points and future use as indicated on the drawings. The DCS will consist of providing new equipment and utilizing existing equipment as they pertain to the following principle features:

    a. Horizontal cable
    b. Copper patch cables
    c. Media outlets and connectors
    d. Cable termination equipment
    e. Ethernet switches
    f. Wireless access points
    g. Testing
    h. Documentation
    i. Training

2. This contract will consist of providing all of the necessary equipment and labor needed to maintain the existing DCS, reuse existing DCS equipment, and provide new DCS 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 administration building. Provide the following principal items:

    a. Provide new category 6 patch panels.
    b. Providing new 2u wire management where required.
    c. Provide new PoE Ethernet data switches where required.
    d. Reuse and integrate existing Ethernet data switches.
    e. Fusion splice and extend the existing 6 strand single mode fiber cable from the old MDF location to the new MDF location.
    f. Provide new Category 6 unshielded twisted pair cabling.
    g. Providing new category 6 patch cables.
    h. Tone, test, label and certify all new data drops at each end of the run.
    i. Providing new data outlets.

B. Products:

1. Fiber Optic Cable

    a. Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among these considered acceptable:

        1) Corning
        2) Avaya

3) Alcatel
4) Engineer approved equal

b. Fiber Splice Hardware

1) Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among those considered acceptable:

a) Corning
b) Raychem
c) Avaya
d) ADC
e) Engineer approved equal

c. Fiber Connectors (SC and FC/APC)

1) Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among these considered acceptable:

a) Corning
b) Amp
c) Avaya
d) 3M
e) Engineer approved equal

2. Single Mode Indoor Tight Buffer Fiber Cables

a. General

1) Non-Plenum Applications - Applicable Flame Tests: UL 1581 and UL 1666
2) Plenum Applications - NFPA 262-1985 (UL 910):

b. Fiber Characteristics

1) All fibers in the cable must be usable fibers and meet required specifications.
2) All optical fibers shall be sufficiently free of surface imperfections and inclusions to meet the optical, mechanical, and environmental requirements of this specification.
3) Each optical fiber shall consist of a doped silica core surrounded by a concentric glass cladding. The fiber shall be a matched clad design.

c. The single-mode fiber utilized in the cable specified herein shall conform to the following specifications:

1) Typical Core Diameter: 8.3 micron
2) Cladding Diameter: 125.0 ± 1.0 micron by fiber end measurement.
3) Core-to-Cladding Offset: 1.0 micron
4) Buffer Diameter: 250 ± 15 micron
5) Attenuation: .35 dB/km @ 1310 nm, .25 dB/km @ 1550 nm

d. Cable Construction

1) For Cables with Less than 6 Fibers:

a) The fibers shall be stranded around an aramid yarn central member and surrounded by layered aramid yarns. The aramid yarns shall serve as the tensile strength member of the cable. A ripcord shall be applied between the aramid yarns and the outer jacket to facilitate jacket removal. The outer jacket shall be extruded over the aramid yarns for physical and environmental protection.

2) For Cables with 12 Fibers:

a) The individual fibers shall be stranded around a glass reinforced plastic (GRP) central member and surrounded by layered aramid yarns. The GRP central member shall provide anti-buckling and ensure consistent attenuation performance across the operating temperature range of the cable. A ripcord shall be applied between the aramid yarns and the outer jacket to facilitate jacket removal. The outer jacket shall be extruded over the aramid yarns for physical and environmental protection.

e. Strength Members:

1) The strength member shall be a high modulus aramid yarn. The aramid yarns shall be helically stranded around the buffered fibers. A non-toxic, non-irritant talc shall be applied to the yarn to allow the yarns to be easily separated from the fibers and the jacket.

f. Cable Jacket:

1) The jacket shall be continuous, free from pinholes, splits, blisters, or other imperfections. The jacket shall be smooth, as is consistent with the best commercial practice. The jacket shall provide the cable with a tough, flexible, protective coating, able to withstand the stresses expected in normal installation and service.

g. The cable jacket color shall be yellow.

h. The cable jacket shall be designed for easy removal without damage to the optical fibers by incorporating a ripcord under each cable jacket. A non-toxic, non-irritant talc shall be applied to the aramid yarns to allow the yarns to be easily separated from the fibers and the jacket.

i. The nominal thickness of the cable outer jacket shall be sufficient to provide adequate cable protection while meeting the mechanical, flammability, and environmental test requirements of this document over the life of the cable.

j. The cable shall be all-dielectric.

k. Identification

1) The individual fibers shall be color coded for identification. The color-coding shall be in accordance with EIA/TIA-598 Color Coding of Fiber Optic Cables. The coloring material shall be stable over the temperature range of the cable, shall not be susceptible to migration, and shall not affect the transmission characteristics of the optical fibers. Color-coded buffered fibers shall not adhere to one another. When fibers are grouped into individual units, each unit shall be numbered on the unit jacket for identification. The number shall be repeated approximately every six inches.

2) Jacket Printing:

a) The outer cable jacket shall be marked at least every two feet with the manufacturer's name or UL file number, date of manufacture, fiber type, flame rating, UL symbol, and sequential length markings. The print color shall be black. The printing shall be permanent and legible for the life of the cable.

3. SC and FC/APC Connectors

a. Specifications (SC):

1) Attenuation: Typical 0.3dB, @ 1550nm
2) Connector Durability: <0.2dB increase / 1000 matings
3) Operating Temperatures: -40 degrees C to + 60 degrees C, temperature cycling
4) Storage Temperature: -40 degrees C to + 80 degrees C
5) Materials:

a) Tip: Ceramic Ferrule
b) Housing: Composite
c) Fiber Size: 8.3/125 micron single-mode fiber

b. Specifications (FC/APC):

1) Attenuation: Typical 0.3dB, @ 1550nm
2) Connector Durability: <0.2dB increase / 1000 matings
3) Operating Temperatures: -40 degrees C to + 60 degrees C, temperature cycling
4) Storage Temperature: -40 degrees C to + 80 degrees C
5) Materials:

a) Tip: Ceramic Ferrule
b) Housing: Composite
c) Fiber Size: 8.3/125 micron single-mode fiber
d) Angle of contact: 5~10 Degree mated connector pair

4. Splice Enclosures

a. Outdoor Enclosures

1) Enclosure must provide for moisture-tight sealing.

2) Enclosure must be re-enterable for system expansion and repair.
3) Splice trays must provide strain-relief so no stress is placed on finished splices within trays.
4) Splice trays will have organizers designed for the use of RTV.

b. Indoor Enclosure

1) Enclosure must be wall mountable and dust proof.
2) Enclosure must have a lockable and removable front panel for access to splice trays.
3) Enclosure must be equipped with multiple cable entrances with strain-relief provisions
4) Splice trays must provide for strain-relief so no stress is placed on finished splices within trays.

5. 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

6. 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) Engineer approved equal

7. Media Outlets and Connectors:

a. For data: red, eight (8) position, eight (8) conductor, 110 IDC, modular snap-in jacks, certified Category 6, T568B jack pin assignment.

b. For voice: ivory, eight (8) position, eight (8) conductor, 110 IDC, modular snap-in jacks, certified Category 6, T568B jack pin assignment.

1) The contractor shall furnish and install ivory, eight (8) position, eight (8) conductor, 110 IDC, modular snap-in jacks, certified Category 6, T568B jack pin assignment at all wall mount phone locations indicated on the drawings.

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. Install data cabling into modular furniture and provide surface mounted boxes for RJ-45 jacks as required.

f. Approved manufacturers:

1) Leviton
2) Hubbell
3) Ortronics
4) Panduit
5) Engineer approved equal

8. 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.

9. 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. At least one power over Ethernet (PoE) switch exists in each data closet at each 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 VoIP endpoints shall be patched to the District's existing and new powered Cisco 3750 and Cisco 3560 switches.
f. The existing wireless access points shall be patched to the District's existing and new powered Cisco 3750 and Cisco 3560 switches.
g. Provide, install and configure the following:

1) MDF:

a) Two (2) Cisco 3560-24PS 24-port 10/100 MB PoE switches.

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 wenches.

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 INSTALLATION – TIMELINE

A. The successful bidder will be working closely with the general trades awarded under a separate contract. The successful Bidder agrees to complete the project as follows:

Task	
Technology Demolition	January 16, 2008 – January 25, 2008
Technology Installation	April 21, 2008 – May 2, 2008

3.3 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.

3.4 INSTALLATION – FIBER CABLING

A. At the building entrance, outdoor loose tube fiber cable will be transition spliced to indoor tight buffered fiber cable.

B. Transition splice enclosure will be wall mounted and secured to the existing plywood backboard.

C. All indoor fiber optic cable will be NEC rated OFNP.

D. Splicing from outside fiber optic cable to OFNP will be within 50 feet of entering the building.

E. Cable slack shall be provided at the building entrance and head end room. A minimum of 10-meters (approx. 30-feet) of slack cable shall be coiled and secured at each location. This slack is exclusive of the length of fiber that is required to accommodate termination requirements and is 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.

F. Fiber optic cable will run from building entrance to head end and terminate on fiber patch panels.

G. All fiber cables, both active and spare, shall be terminated and tested.

H. All fiber cables shall be terminated with SC connectors.

I. All fiber strands shall be terminated in a rack-mounted enclosure provided by others.

J. All indoor fiber cables shall be installed in corrugated, Plenum, innerduct that is run in cable tray or "J" hooks.

K. Indoor fiber optic cable shall be orange in color.

L. Identify fiber every twenty feet with "fiber optic cable" warning labels.

M. The contractor shall work carefully with all ceilings and return ceilings to original conditions. Any damages or expenses are the responsibility of the contractor.

N. All entrance and intra-building cable penetration, conduit, cores, wall and ceiling penetrations will be sealed with a 3 M type fire retardant. Refer to Section 07841 "Through Penetration Firestop Systems" for additional requirements.

O. At the head end and all locations the fiber count will be clearly marked.

P. Labeling:

1. Clearly label cables at both ends with permanently applied, mechanically printed labels. Hand written labels will not be acceptable. Use standardized colors and alphanumeric codes. Engineer will approve labeling system and method.

2. Labels shall be located within six inches of the termination.
3. Front label each fiber patch panel port.
4. All fibers with FC/APC connectors shall be reserved for Video Transmission only and shall be clearly labeled for clarification.

3.5 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.

3.6 INSTALLATION – WIRELESS ACCESS POINTS

A. The locations of the existing wireless access points are critical to the proper operation of the wireless network.

B. Prior to demolition, measure, document, and mark the exact locations of the existing wireless access points.

C. Verify with the Owner the proper functionality of the wireless access points prior to removal. Upon reinstallation, non-functioning equipment shall be the responsibility of this contractor unless documented to the Owner during the testing prior to removal.

D. Upon completion of the installation of the new ceiling grid and ceiling tiles, reinstall the wireless access points in the exact locations as previously documented. Work with the Owner to test the wireless coverage of the reinstallation and adjust the locations of the wireless access points as required.

3.7 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)

3.8 FIBER OPTIC TESTING

A. Testing and documentation shall be done on all fibers with connectors. The contractor shall provide the calibration date of the unit used to perform the measurements to the district prior to beginning the test. That date must be within 12 months of test (or less if recommended by the manufacturer). Fiber loss shall be checked from connector to connector on all single mode fibers.

B. All Fiber Optic Cable shall be tested using an Optical Time Domain Reflectometer (OTDR). Documentation for each test shall be provided to Owner. The signature trace of each cable must include the attenuation per kilometer and total length of each strand. Acceptance tests for all fiber strands shall include attenuation, attenuation uniformity, and continuity, testing shall be

performed at 1310nm and 1550nm wavelengths. Corrective action shall be taken by this contractor in the design of the system to insure all loss budgets are maintained. See loss budget below.

C. The OTDR test results will determine the following:

1. The overall length of each segment.
2. Proper termination.
3. Continuity in the fiber.
4. Total segment attenuation.
5. Irregularities in the fiber.
6. Loss for each strand at 1310 nm and 1550 nm.
7. Reflectance.

D. On the reel testing required prior to installation. Each fiber strand will be checked with an OTDR at 1310 nm to identify point discontinuities. Hard copy results are to be provided.

E. Fusion Splice Testing - Optical fiber splice shall not exceed a maximum optical attenuation of 0.3dB when tested in accordance with ANSI/EIA/TIA 355-59.

F. Connector Testing - Optical connectors shall not exceed a maximum optical attenuation of 0.75dB per mated connection when tested in accordance with ANSI/EIA/TIA 455-59.

G. Reflectance Testing - Optical fiber connection between buildings shall not have a reflectance greater than -60dB per strand for video.

H. Any 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 Southfield Public School District and at no expense to Southfield Public School District.

3.9 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.

3.10 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 16050 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 existing VVCS consists 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.

C. 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.

D. The VVCS includes providing and integrating the following principal systems:

1. Test TV's and set-top boxes for proper operation prior to removal. Disconnect, remove, store (off site at the Services Building) and reinstall: TV's, TV mounting brackets, set-top boxes, interconnect cables, and test for operation after installation. This work is being performed to accommodate installation of new ceiling grid and tiles and HVAC upgrades. Equipment found defective after reinstallation will be the responsibility of this contractor to repair or replace with new unless the Engineer shall be notified in writing at the time of "test" prior to removal of the units that they are not operational. The TV's and set-top boxes shall be tagged with markers indicating which room they were removed and subsequently shall be installed in the same room from which they were removed, unless otherwise noted on the drawings.
2. Test, remove, store and reinstall existing televisions and television brackets. The supporting steel, yoke and extension column shall remain.
3. Coordinate with the electrical and mechanical trades. Should general trades renovation work require the relocation of a TV, this contractor shall remove, store and reinstall the TV mount in its entirety including supporting steel, yoke, extension column and bracket.
4. Remove all abandoned video cable, paging cable, broadband cable, video control cable, hardline cable, taps, splitters complete.
5. Provide new/relocate existing 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.
6. Rebalance and tune the RF broadband system in the administration building.

E. Furnish to the electrical contractor all system specialty back boxes. Standard electrical back boxes will be furnished by the Electrical Contractor.

F. 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 TELEVISION SETS (EXISTING)

A. The existing Television Sets range in size from 13" to 20".

B. This contract consists of testing, removing, storing and reinstalling existing Televisions sets.

C. Refer to the drawings for Television quantities, sizes and locations.

2.2 TV SET TOP BOXES (EXISTING)

A. The existing TV Set Top Boxes are Dukane Model DSS2500 Set Top Boxes.

B. This contract consists of testing, removing, storing and reinstalling existing TV Set Top Boxes.

C. Refer to the drawings for TV Set Top Box quantities and locations.

2.3 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.

2.4 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.

2.5 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 countered bore 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.

PART 3 - EXECUTION

3.1 INSTALLATION - GENERAL

A. 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.

B. 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.

C. The contractor shall use standard cable practices in the installation of the RF system.

D. System design and engineering shall utilize a tap-off system exclusively.

E. RF taps shall be secured to building supports or cable tray and not allowed to float at cable termination points.

F. The signal level at every tap shall be fifteen (+15 dB) plus or minus three (-3) dB between adjacent channels.

G. Signal level at every outlet shall be five (+5 dB) plus or minus two (2) dB between adjacent channels.

H. All passive components shall be designed for a frequency range of 5 to 16 Hz. The system shall be designed for adjacent channel operation.

I. The Contractor shall carefully lay all cable with appropriate radius of curvature and protect at bends and corners.

J. 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.

K. The Contractor shall loosely bundle cables with Velcro wraps, suitable for Plenum environments, every twenty (20) feet.

L. The Contractor shall not fasten supports to pipes, ducts, mechanical equipment or conduit.

M. The Contractor shall obtain permission from the Owner or the Technology Designer before drilling or cutting structural members.

N. Powder actuated anchoring devices shall not be used to anchor any cable support or raceway system components.

3.2 INSTALLATION – TIMELINE

A. The successful bidder will be working closely with the general trades awarded under a separate contract. The successful Bidder agrees to complete the project as follows:

Task	
Technology Demolition	January 16, 2008 – January 25, 2008
Technology Installation	April 21, 2008 – May 2, 2008

3.3 INSTALLATION - TELEVISION SETS

A. Prior to removal, test the functionality of the Television Set. Television Sets found defective upon reinstallation will be the responsibility of this contractor to repair or replace at no additional cost to the Owner unless the Engineer and Owner are notified of the defective unit in writing at the time of the "test".

B. Label the Television Set, mounting bracket and associated patch cables with the installation location prior to removal.

C. Disconnect and remove the Television Set, mounting bracket and associated patch cables and store off site at the Services Building located at the rear of the same property as the Administration Building.

D. Upon completion of the general trades work, reinstall the Television Sets, mounting brackets and associated patch cables.

E. Test the functionality of the Television set. Rebalance and tune the RF broadband system as necessary.

F. Where Television Sets are relocated due to requirements of the Contract Documents or general trades work, remove, store and reinstall the support steel, yoke and extension column in addition to the Television Set and mounting bracket. 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.

3.4 INSTALLATION - TV SET TOP BOXES

A. Prior to removal, test the functionality of the Set Top Box. Set Top Boxes found defective upon reinstallation will be the responsibility of this contractor to repair or replace unless the Engineer and Owner are notified of the defective unit in writing at the time of the "test".

B. Label the Set Top Box with the installation location prior to removal.

C. Disconnect and remove the Set Top Box and associated patch cables and store off site at the Services Building located at the rear of the same property as the Administration Building.

D. Upon completion of the general trades work, reinstall the Set Top Boxes and associated patch cables.

E. Test the functionality of the Set Top Box.

F. 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 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)

FREQUENCIES	RADIATION LEAKAGE uV/M	DISTANCE (FEET)
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:

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

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

3.6 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.

3.7 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.

3.8 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).

3.9 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.

END OF SECTION 16795

Integrated Design Solutions

888 W. Big Beaver, Ste. 200
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PRE-BID MEETING NOTES NO. 01

Date: December 19, 2007

Present: See Attached

Project Name: Troy School District
School Technology Systems
Administration Building Renovations
Troy, Michigan
TSD Bid Package No. 9474

IDS Project No.: 03234-2004 BP28

The following items were discussed and/or resolved at the above referenced meeting:

1.1 Plans and specifications are available at the offices of Integrated Design Solutions, 888 West Big Beaver, Suite 200, Troy, Michigan (248) 823-2100. A fifty-dollar ($50.00) refundable deposit is required when picking up the plans. Bidders who return both the plans and specifications within ten (10) days of the bid opening will be mailed a check for their deposit amount.

1.2 Bids will be publicly opened at 3:00 pm on Thursday, December 27, 2007, at the Troy School District Purchasing Department located at 1140 Rankin, Troy, Michigan.

1.3 Troy School District's Purchasing Department will have the following holiday hours:

A. December 19th, 20th and 21st, the office will be staffed until 3:30 pm.

B. December 24th, 25th, and 26th, the office will be closed.

C. December 27th, the Purchasing Supervisor will be the only person available to receive bids. He will be in the office in the morning, will have a meeting at Athens High School and then will be back in the office around 1:30 pm until the bid deadline of 3:00 pm.

1.4 Due to the holidays, bidders are strongly encouraged to hand deliver their bid submissions because of potential delays by delivery companies. When delivering bid submissions, make sure your submission is received by Purchasing Department personnel and logged in.

1.5 Post bid interviews will be held on January 3rd and January 4th.

1.6 Bidders need to submit one (1) original and two (2) copies of the bid and retain a copy for themselves. Clearly label each copy submitted as either "original" or "copy".

1.7 Bid award is planned for the January 15, 2008, Board of Education meeting.

1.8 All questions must be submitted by 12:00 pm on Thursday, December 20, 2007. Questions submitted after this date will not be answered.

1.9 Answers to RFI's will be posted on the Troy School District Purchasing web site, transmitted to the plan houses and available at the offices of Integrated Design Solutions by 5:00 pm on Friday, December 21, 2007.

1.10 Bid security in the amount of 5% of the total bid in the form of a bid bond, certified check or cashier's check is a requirement of the bid submission. Bid security for unsuccessful bidders will be returned in a timely manner. Bid security for the successful bidder will be returned after a contract agreement has been executed and acceptance of the required bond and insurance is made.

1.11 The bid form needs to be filled out in its entirety. Pricing information should be filled out using both words and numbers. In the case of a discrepancy, the amount entered in words will take precedence.

1.12 As a condition precedent to award of the contract, a satisfactory Performance and Labor and Material Payment Bond by a Treasury approved surety licensed to do business in the State of Michigan is required.

1.13 A pre-bid site visit to the Administration Building will occur immediately following this meeting.

1.14 This is a prevailing wage rate project. Copies of the prevailing wage rate schedule for this project are included in the Bid Specifications.

1.15 The contract will be awarded in the form of an executed AIA Abbreviated Standard Form of Agreement between the Owner and the Contractor, AIA Document A107-1997 in conjunction with the Supplemental Conditions and additional conditions as defined within Specification Section 00800. A sample copy of the Contract is contained within the Bid Specifications.

1.16 Refer to Bid Specification Section 16015, Article 1.7 for specific Bid Proposal submission requirements.

1.17 The construction schedule for this project is dependent upon the general trades construction schedule. The schedule, at the time of publication, requires Technology Demolition to occur from January 16, 2008 – January 25, 2008 and Technology installation to occur from April 21, 2008 – May 2, 2008. The successful bidder shall be flexible with their construction schedule to accommodate changes based upon changes to the general trades schedule.

1.18 An Addendum will be forthcoming. The following items will be addressed in the Addendum:

A. Section 16790, Article 2.2 describes the product requirements and approved product manufacturers. Superior Modular will be added as an additional approved manufacturer for the products specified in subparagraphs 2.2.B.6.g and 2.2.B7.f.

B. Section 16795, Article 3.3 describes the installation requirements for the TV sets. As the coffered ceiling is being removed and replaced with a lay-in ceiling, the extension pipes will be too short to remount the TV's. The words "extension pipe" will be added to Paragraph 3.3.C as follows: "Disconnect and remove the Television Set, mounting bracket, **extension pipe,** and associated patch cables..." Paragraph 3.3.D will be reworded as follows: "Upon completion of the general trades work, reinstall the Television Sets, mounting brackets, **contractor provided extension pipes,** and associated patch cables. **Field verify the proper extension pipe lengths based on the mounting requirements as shown on Drawing T5.2 Video System Riser Diagrams and Details.**"

1.19 Project Overview (refer to project manual for exact requirements):

A. Demolition

1. Remove existing data and phone cabling from the end station to the source. A small number of employees will continue to reside and work in the building during construction. Their data and phone service shall not be disconnected/ interrupted during normal business hours.

2. The existing MDF closet is being relocated to the Data Processing Room. The single mode WAN fiber and the video trunk will be extended from the existing MDF to the Data Processing Room. This will be scheduled to occur outside of normal business hours so as not to disrupt services for the remaining employees working in the building.

3. TV's shall be tested before being taken down and stored at the Services Building. Inoperable TV's shall be the responsibility of the contractor unless the Owner is notified in writing prior to the TV's being removed and put into storage.

4. Wireless Access Points shall be tested before being taken down and stored at the Services Building. Inoperable Wireless Access Points shall be the responsibility of the contractor unless the Owner is notified in writing prior to the Wireless Access Points being removed and put into storage.

5. The District does not want to have the Administration Building resurveyed for Wireless Network coverage. Prior to the removal of the existing Wireless Access Points, the exact location of the Wireless Access Points shall be marked and recorded. During installation, the Wireless Access Points shall be reinstalled in the exact same location.

6. Provide and install blank plates for all openings not reused during installation of the new cabling.

7. Include an additional twenty-four (24) hours of demolition labor in your bid response. This labor is above and beyond the labor required to demolish the cabling as shown on the drawings. This labor is for unknown cabling that may be existing within the ceiling space.

8. At the time of publication, the existing alarm system cabling will remain. The contractor may be called upon to cleanup and tag the alarm cabling as part of a separate project or may utilize some of the twenty-four (24) hours discussed previously.

B. Installation

1. Install, test and tag new Category 6 data drops as described in the Bid Specifications and shown on the Drawings.

2. Relocate the MDF to the Data Processing Room and extend the existing single mode WAN fiber and the video trunk.

3. Reinstall the TV's as shown on the drawings. One (1) TV is being relocated.

4. Reinstall the Wireless Access Points in the same location that they were removed from.

5. Provide and install PoE switches as indicated in the specifications.

6. Provide closeout documentation as described in the Bid Specifications.

1.20 The following questions were addressed:

Q1. Define "(R)" as shown on the drawings. Does it stand for reuse or relocate?

A1. On the plans, it stands for "relocate". In most cases the contractor will be "relocating" the device to the same location. Compare the devices on the demolition sheets to the devices on the new work sheets to determine if the device is to be removed and relocated or removed and reinstalled in the same location.

Q2. Do we have to be Dukane certified in order to remove and reinstall the set top boxes?

A2. No. Most of the set top boxes are being removed, stored and reinstalled in the same location. No programming or configuration is required.

Q3. Most of the District's other buildings have some cable tray, does the Administration Building have cable tray?

A3. No. The contractor will use "J" hooks. Refer to the Bid Specifications for specific requirements.

Q4. You discussed using a chimney to bring the cables into the rack in the Data Processing Room. The existing rack is not made to accept a chimney, can we use a small piece of ladder and neatly waterfall the cables into the rack?

A3. Yes.

If you have any additions and/or corrections to the above notes, please contact the author.

INTEGRATED DESIGN SOLUTIONS, LLC

Scott Smith
Technology Services

cc: File

ec: Attendees

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Integrated Design Solutions

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MEETING ATTENDANCE RECORD

Date:	December 19, 2007	Time:	9:00 am
Project Name:	Troy School District School Technology Systems Administration Building Renovations	Place:	Troy School District Services Building
IDS Project No.:	03234-2004 BP28	Reason for Meeting:	Pre Bid Conference

NAME/E-MAIL ADDRESS (Please Print)	REPRESENTING		
Daniel Woods dwoods@wiltecinc.com	Wiltec Technologies	Phone: Fax:	734-975-2122 734-975-2101
Jeff Whaley jwhaley@analysts.com	Analysts International	Phone: Fax:	248-232-5220 248-810-5102
Jeff Seelenbinder jseelenbinder@analysts.com	Analysts International	Phone: Fax:	248-232-5222 248-232-5414
Steve MacKillop steve.mackillop@nns16.com	NNS	Phone: Fax:	248-853-9900 248-853-6667
Mark Spencer mspencer@dat-inc.us	DAT	Phone: Fax:	810-658-4008 810-658-4881
Jerry Troub jerry.troub@cci4solutions.com	Complete Communications	Phone: Fax:	586-439-2000 586-439-2001
Keith Bond kbond@amcomminc.com	AMComm Technologies	Phone: Fax:	248-698-8868 248-698-8869
Scott Bryan sbryan2@troy.k12.mi.us	Troy School District	Phone: Fax:	248-823-5060
Scott Smith ssmith@ids-troy.com	Integrated Design Solutions, LLC	Phone: Fax:	248-823-2100

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CONTRACTOR REQUEST FOR INFORMATION NO. 01

Project Name:	Troy School District School Technology Systems Administration Building Renovations TSD Bid No. 9474 Troy, Michigan
IDS Project No.:	03234-2004 BP28
Date:	December 20, 2007
Attention:	S. Smith

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

1. According to the spec it says to remove all video cable and reinstall with new AL500 Hardline. I thought it was discussed that the video was not to be touched, yes or no? If yes the existing is RG11 cable and would we need to change out the taps, which I would recommend.

Dan Woods	Wiltec Technologies	December 20, 2007
Name	Company	Date

IDS Response:

1. Section 16795, paragraph 1.2.D.4 refers to removing all abandoned video cable. As discussed at the Pre-Bid Conference, the hardline video backbone is not being abandoned and should stay intact and operational. The video backbone shall be extended to the Data Processing Room as the MDF is being relocated as part of this project.

Scott Smith	Integrated Design Solutions	December 20, 2007
Name	Company	Date

ec: S. Bryan, TSD
F. Lams, TSD
Builders Exchange of Grand Rapids
Construction Association of Michigan Plan Room
McGraw Hill Construction Plan Room
Reed Construction Data

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ADDENDUM NO. 1

Issue Date: December 20, 2007

Project Name: Troy School District
School Technology Systems
Administration Building Renovations
Troy, Michigan
TSD Bid Package No. 9474

IDS Project No.: 03234-2004 BP28

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: None

Drawings: None

Sketches: None

PROJECT MANUAL DOCUMENTS DELETED OR REVISED BUT NOT ISSUED

Item No. 1 Section 16790

A. Added subparagraph 2.2.B.6.g.8) as follows:

"8) Superior Modular"

B. Added subparagraph 2.2.B.7.f.5) as follows:

"5) Superior Modular"

Item No. 2 Section 16795

A. Revised paragraph 3.3.C as follows:

"C. Disconnect and remove the Television Set, mounting bracket, **extension pipe,** and associated patch cables…" Paragraph 3.3.D will be reworded as follows: "Upon completion of the general trades work, reinstall the Television Sets, mounting brackets, **contractor provided extension pipes,** and associated patch cables**. Field verify the proper extension pipe lengths based on the mounting requirements as shown on Drawing T5.2 Video System Riser Diagrams and Details**."

cc: File

Integrated Design Solutions
Architecture, Engineering, Interiors & Technology

BID TABULATION FORM

Project Name: Troy School District
School Technology Systems
Administration Building Renovations
TSD Bid Number 9474

IDS Project No.: 03234-2004 BP28

Date: December 27, 2007

Estimate:

	Digital Age Technologies	The Datacom Group	Amcomm Telecommunication	Analysts International	Wiltec Technologies
Bid Bond	Yes	Yes	Yes	Yes	Yes
Addendum	not acknowledged	not acknowledged	1	1	1
Familiar Disclosure	Yes	Yes	Yes	Yes	Yes
Base Bid	$32,053.00	$39,750.00	$45,600.00	$49,584.95	$57,309.28

Mandatory Alternates

None Required

Voluntary Alternates

Voluntary Alternate No. 1	$2,400.00				$461.29
Voluntary Alternate No. 2					
Voluntary Alternate No. 3					

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