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Integrated Design Solutions

Project Manual

Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496

IDS Project No. 03234-1000 BP26

May 7, 2008
Bids

Project Manual

**Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496**

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. 9496
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SECTION 00100 - ADVERTISEMENT FOR BIDS

DATE: May 7, 2008

PROJECT: Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
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 May 22, 2008, the Owner will receive sealed Bids for the work as set forth in the Bidding Documents at:

Troy School District
Purchasing Department
1140 Rankin
Troy, Michigan 48083

ATTN: Frank Lams, Purchasing Supervisor

All Bids will be publicly opened and read aloud at 3:00 pm on May 22, 2008, at the Troy School District Purchasing Department. A bid tabulation summary will be available.

The Bidding Documents will be on file on and after May 7, 2008, and may be examined at the following locations during regular business hours, Monday through Friday.

World Wide Web: Troy School District (Specifications Only)
http://www.troy.k12.mi.us/purchasing/items_out_for_bid.htm

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.

Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
Troy, Michigan

IDS Project No. 03234-1000 BP26

The Engineer/Technology Designer will furnish one (1) set of documents to the bidders with a \$50 refundable deposit. Deposit is refundable within ten (10) days of receipt of bids. Incomplete, damaged or Bidding Documents returned later than ten (10) days after receipt of bids shall result in a forfeiture of deposit.

A pre-bid conference is scheduled for May 14, 2008, 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.

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.

After the pre-bid conference, the Owner will make available representative school buildings for Bidders to examine site and local conditions

END OF ADVERTISEMENT FOR BIDS

SECTION 00200 - INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

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

2. SECURING BIDDING DOCUMENTS

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

3. PREPARATION AND SUBMISSION OF BIDS

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

- C. Amounts shall be expressed in both words and figures. In case of a discrepancy the amount stated in words shall govern.
- D. Alterations by erasure or interlineations must be initialed by the Bidder.
- E. All Alternates must be bid. If no change in the Base Bid is required, enter "No Change."
- F. Submit the Bid, along with the bid security and any other documents required to be submitted with the Bid, to the Owner, and deliver to the address given in the Advertisement for Bids on or before the day and hour set for receipt of the Bids.
 - 1. Enclose each Bid in a sealed opaque envelope bearing the title of the work Projectors and Document Cameras II, TSD Bid No. 9496, 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:	May 7, 2008
Pre-bid Conference and Site Visits:	May 14, 2008, 9:00 am
Deadline for RFI Submissions:	May 15, 2008, 12:00 pm
Deadline for RFI Responses and Addenda:	May 16, 2008, 5:00 pm
Bids Due:	May 22, 2008, 3:00 pm
Bid Opening:	May 22, 2008, 3:01 pm
Post Bid Interviews:	May 28, 2008
Bid Award:	June 17, 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 official prevailing rates provide an hourly rate which includes wage and fringe benefit totals for designated construction mechanic classifications. The overtime rates also include wage and fringe benefit totals. Please pay special attention to the overtime and premium pay requirements. Prevailing wage is satisfied when wages plus fringe benefits paid to a worker are equal to or greater than the required rate.

State of Michigan responsibilities under the law:

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

Contracting agent responsibilities under the law:

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

Contractor responsibilities under the law:

- Every contractor and subcontractor shall keep posted on the construction site, in a conspicuous place, a copy of all prevailing rates prescribed in a contract.
- Every contractor and subcontractor shall keep certified payrolls, as used in the industry, of each and every construction mechanic, and verification of such certified payroll in writing by either a representative or auditor/certified accountant at the end of such a certified payroll. These records should include the occupation and indicate the hours worked on each project for each classification and the actual wages and benefits paid. 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 Attorney General for civil action will be made. The Office of Attorney General will pursue costs and fees associated with a lawsuit if filing is necessary to obtain records.

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

WAGE & HOUR DIVISION
P.O. BOX 30476 • LANSING, MICHIGAN 48909-7976
www.michigan.gov/wagehour • (517) 335-0400 • FAX (517) 335-0077

ENGINEERS - CLASSES OF EQUIPMENT LIST

UNDERGROUND ENGINEERS

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, Hydro Excavator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slope 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, Water Wagon 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: 03/25/08



JENNIFER M. GRANHOLM
GOVERNOR

KEITH W. COOLEY
DIRECTOR

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

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

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

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

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

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

Other examples of the types of fringe benefits allowed:

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

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

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



STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF LABOR & ECONOMIC GROWTH
LANSING

KEITH W. COOLEY
DIRECTOR

Michigan Department of Labor & Economic Growth *Wage & Hour Division*
OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE SCHEDULE

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

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

Overtime for Monday thru Friday after 8 hours:

the 1st character is for time worked in the 9th hour (8.1 - 9 hours)
the 2nd character is for time worked in the 10th hour (9.1 - 10 hours)
the 3rd character is for time worked beyond the 10th hour (10.1 and beyond)

Overtime on Saturday:

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

Overtime on Sundays & Holidays

The 8th character is for time worked on Sunday or on a holiday
The last character indicates if an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked.

2. Overtime Indicators Used in the Overtime Provision:

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

3. EXAMPLES:

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

XXXHHHHDY - This example shows that the 1½ rate must be used for time worked after 40 hours are worked Monday thru Friday (characters 1-3); for hours worked on Saturday, 1½ rate is due (characters 4 - 7). Work done on Sundays or holidays must be paid double time (character 8). The Y (character 9) indicates that 4 ten-hour days is an acceptable alternative workweek. (REV 01/15/08)

Official Request
 Lansing, MI 48909-7976

Requestor: TROY SCHOOL DISTRICT
Project Description: PROJECTORS & DOCUMENT CAMERA
Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

Telephone: 517-335-0400
 Fax: 517-335-0077
 www.michigan.gov/wagehour

Oakland County
Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008
Contract must be awarded by: 7/20/2008

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<u>Classification</u>			Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Asbestos & Lead Abatement Laborer							
Asbestos & Lead Abatement Laborer	MLDC		7/31/2007	\$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		11/28/2007	\$32.65	\$44.75	\$56.85	H H H X X X X D Y
Boilermaker							
Boilermaker	BO169		11/5/2007	\$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		12/20/2007	\$48.96	\$73.44	\$97.92	H H D H D D D D N
Apprentice Rates:							
First 6 months			\$29.49	\$44.24	\$58.98		
2nd 6 months			\$31.31	\$46.97	\$62.62		
3rd 6 months			\$33.13	\$49.70	\$66.26		
4th 6 months			\$34.95	\$52.43	\$69.90		
5th 6 months			\$36.77	\$55.16	\$73.54		
6th 6 months			\$38.59	\$57.89	\$77.18		
7th 6 months			\$40.41	\$60.62	\$80.82		
8th 6 months			\$42.23	\$63.35	\$84.46		

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

Official Rate Schedule
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<u>Classification</u>	Name	Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
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Carpenter

Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)	CA1045	1/9/2008	\$42.24	\$59.86	\$77.47	H H H H D D D D N
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Apprentice Rates:

1st 6 months	\$21.10	\$28.15	\$35.19
2nd 6 months	\$24.62	\$33.42	\$42.23
3rd 6 months	\$26.38	\$36.07	\$45.75
4th 6 months	\$28.15	\$38.72	\$49.29
5th 6 months	\$29.91	\$41.36	\$52.81
6th 6 months	\$31.67	\$44.01	\$56.33
7th 6 months	\$33.42	\$46.63	\$59.83
8th 6 months	\$35.19	\$49.28	\$63.37

Carpenter	CA687Z1	1/14/2008	\$46.58	\$66.30	\$86.02	H H D H D D D D Y
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Apprentice Rates:

1st Year	\$28.84	\$39.69	\$50.54
3rd 6 months	\$30.81	\$42.64	\$54.48
4th 6 months	\$32.78	\$45.60	\$58.42
5th 6 months	\$34.75	\$48.56	\$62.36
6th 6 months	\$36.73	\$51.53	\$66.32
7th 6 months	\$38.70	\$54.49	\$70.26
8th 6 months	\$40.66	\$57.43	\$74.18

Cement Mason

Cement Mason	CE514	7/20/2007	\$43.95	\$61.87	\$79.78	H H D H H H H D N
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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

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Elevator Constructor					
Elevator Constructor	EL 36	\$56.46		\$94.99	D D D D D D D D Y
Elevator Constructor	8/7/2007				
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		
Glazier					
Glazier	GL-357	\$42.60	\$56.83		H H H H H H H H Y
	1/7/2008				
Apprentice Rates:					
1st 6 months		\$28.37	\$35.48		
2nd 6 months		\$29.80	\$37.63		
3rd 6 months		\$32.64	\$41.89		
4th 6 months		\$34.07	\$44.03		
5th 6 months		\$35.49	\$46.16		
6th 6 months		\$36.91	\$48.29		
7th 6 months		\$38.33	\$50.42		
8th 6 months		\$41.18	\$54.69		
Heat and Frost Insulator					
Spray Insulation	AS25S	\$20.14	\$29.14		H H H H H H H H N
	3/5/2007				
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
	3/5/2007				
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
	10/4/2007				

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Siding, Glazing, Curtain Wall	IR-25-GZ1	\$39.86	\$59.54	\$79.22	H H D H H H D D Y
	3/28/2008				
Apprentice Rates:					
Level 1		\$24.72	\$36.54	\$48.34	
Level 2		\$26.69	\$39.49	\$52.28	
Level 3		\$28.65	\$42.43	\$56.20	
Level 4		\$30.62	\$45.39	\$60.14	
Level 5		\$32.59	\$48.34	\$64.08	
Level 6		\$34.56	\$51.29	\$68.02	
Pre-engineered Metal Work	IR-25-PE-Z1-Z2	\$40.94	\$51.62	\$62.29	H H H X X X X D Y
	10/4/2007				
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
	10/4/2007				
Apprentice Rates:					
Level 1		\$30.05	\$44.56	\$59.05	
Level 2		\$32.46	\$48.16	\$63.87	
Level 3		\$34.88	\$51.80	\$68.71	
Level 4		\$37.30	\$55.42	\$73.55	
Level 5		\$39.72	\$59.06	\$78.39	
Level 6		\$42.13	\$62.67	\$83.21	
Rigging Work	IR-25-RIG	\$53.98	\$80.75	\$107.52	H H H H H H H D N
	10/4/2007				
Apprentice Rates:					
Level 1&2		\$30.62	\$45.34	\$60.07	
Level 3		\$33.30	\$49.37	\$65.43	
Level 4		\$35.97	\$53.37	\$70.77	
Level 5		\$38.66	\$57.41	\$76.15	
Level 6		\$41.33	\$61.41	\$81.49	
Decking	IR-25-SD	\$46.40	\$69.32	\$92.23	H H D H H H D D Y
	10/4/2007				

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Structural, ornamental, conveyor, welder and pre-cast Apprentice rates apply to structural, conveyer, fence, glazing, reinforced, rigging, & siding decking	IR-25-STR 10/4/2007	\$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 3/28/2008	\$35.72	\$47.34	\$58.96	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 6/5/2007	\$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 6/5/2007	\$37.88	\$53.74	\$69.59	H H D H D D D D Y
Lansing Burner, Blaster & Powder Man	L1076-A-C 6/5/2007	\$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 6/5/2007	\$38.12	\$54.10	\$70.07	H H D H D D D D Y
Cleaner/ sweeper laborer, furniture laborer	L1076-A-E 6/5/2007	\$32.17	\$45.17	\$58.17	H H D H D D D D Y
Demolition Laborer	L1076-D 6/5/2007	\$37.62	\$53.35	\$69.07	H H D H D D D D Y

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Plasterer Tender, Plastering Machine Operator	LPT-1 7/3/2007	\$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 10/11/2007	\$37.62	\$53.35	\$69.07	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 10/11/2007	\$38.62	\$54.85	\$71.07	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 9/6/2007	\$33.54	\$44.30	\$55.05	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	

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.	LAUCT-Z1-2 9/6/2007	\$33.65	\$44.46	\$55.27	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	LAUCT-Z1-3 9/6/2007	\$33.71	\$44.55	\$55.39	H H H H H H D Y
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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 9/6/2007	\$33.89	\$44.82	\$55.75	H H H H H H D Y
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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 9/6/2007	\$34.14	\$45.20	\$56.25	H H H H H H D Y
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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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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Class VI - Dynamite man and powder man.	LAUCT-Z1-6 9/6/2007	\$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 9/6/2007	\$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	LLAN-Z1-A 7/3/2007	\$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 7/3/2007	\$20.16	\$27.48	\$34.80	X X H X X X H D Y
Marble Finisher Marble Finisher	TT32-MF 7/25/2007	\$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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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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<u>Classification</u>										
Name	Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision				
Marble Mason										
Marble Mason		TT32-MM	\$45.76	\$59.19	\$72.61	H	H	D	H	D
		7/25/2007				D	D	D	D	D
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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Regular engineer, hydro-excavator, remote controlled concrete breaker	EN-324-RE 6/5/2007	\$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

Operating Engineer - Marine Construction

Diver/Wet Tender, Engineer (hydraulic dredge)	GLF-1 1/8/2008	\$51.76	\$67.91	\$84.06	X X H H H H H D Y
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Holidays paid at \$100.21 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 1/8/2008	\$50.26	\$65.66	\$81.06	X X H H H H H D Y
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Holidays paid \$96.46 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 1/8/2008	\$46.91	\$60.64	\$74.36	X X H H H H H D Y
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Holidays paid at \$88.08 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 1/8/2008	\$42.26	\$53.66	\$65.06	X X H H H H H D Y
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Holidays paid at \$76.46 per hour

Subdivision of county All Great Lakes, islands therein, & connecting & tributary waters

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

County: Statewide

Official Rate Schedule

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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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<u>Classification</u>	Last	Straight	Time and	Double	Overtime
Name Description	Updated	Hourly	a Half	Time	Provision

Operating Engineer Hazardous Waste Class I

Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye	EN-324-HWCI-Z1A 4/3/2008	\$47.34	\$63.11	\$78.87	H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$37.78	\$48.81	\$59.85
2nd 6 months	\$39.36	\$51.19	\$63.01
3rd 6 months	\$40.94	\$53.56	\$66.17
4th 6 months	\$42.52	\$55.92	\$69.33
5th 6 months	\$44.09	\$58.28	\$72.47
6th 6 months	\$45.67	\$60.66	\$75.63

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 4/3/2008	\$46.39	\$61.68	\$76.97	H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$37.11	\$47.82	\$58.51
2nd 6 months	\$38.64	\$50.11	\$61.57
3rd 6 months	\$40.17	\$52.40	\$64.63
4th 6 months	\$41.70	\$54.70	\$67.69
5th 6 months	\$43.23	\$57.00	\$70.75
6th 6 months	\$44.76	\$59.29	\$73.81

Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCI-Z1D 3/24/2008	\$45.09	\$59.73	\$74.37	H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$36.20	\$46.45	\$56.69
2nd 6 months	\$37.68	\$48.67	\$59.65
3rd 6 months	\$39.14	\$50.86	\$62.57
4th 6 months	\$40.60	\$53.05	\$65.49
5th 6 months	\$42.06	\$55.23	\$68.41
6th 6 months	\$43.53	\$57.44	\$71.35

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1DCL 3/24/2008	\$44.84	\$59.36	\$73.87	H H H H H H D Y
Apprentice Rates:					
1st 6 months		\$36.03	\$46.19	\$56.35	
2nd 6 months		\$37.48	\$48.37	\$59.25	
3rd 6 months		\$38.93	\$50.54	\$62.15	
4th 6 months		\$40.38	\$52.72	\$65.05	
5th 6 months		\$41.84	\$54.91	\$67.97	
6th 6 months		\$43.29	\$57.08	\$70.87	
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	EN-324-HWCII-Z1A 4/3/2008	\$43.11	\$56.76	\$70.41	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 3/24/2008	\$42.16	\$55.34	\$68.51	H H H H H H D Y
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1D 3/24/2008	\$40.86	\$53.39	\$65.91	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 3/25/2008	\$40.61	\$53.01	\$65.41	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	EN-324-HW140-Z1A 4/3/2008	\$49.99	\$67.08	\$84.17	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 3/24/2008	\$49.04	\$65.66	\$82.27	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 3/24/2008	\$47.74	\$63.71	\$79.67	H H H H H H D Y

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW140-Z1DCL 3/25/2008	\$47.49	\$63.33	\$79.17	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	EN-324-HW220-Z1A 4/3/2008	\$50.29	\$67.53	\$84.77	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 3/24/2008	\$49.34	\$66.11	\$82.87	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 3/24/2008	\$48.04	\$64.16	\$80.27	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 3/25/2008	\$47.79	\$63.78	\$79.77	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 3/24/2008	\$46.06	\$61.19	\$76.31	H H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom					
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1DCL 3/25/2008	\$45.19	\$59.88	\$74.57	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 3/24/2008	\$47.36	\$63.14	\$78.91	H H H H H H H D Y

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<u>Classification</u>	Name	Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
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	EN-324-HWRC-Z1A	4/3/2008	\$48.31	\$64.56	\$80.81	H H H H H H D Y
Operating Engineer Steel Work							
	Forklift, 1 Drum Hoist	EN-324-ef	4/2/2008	\$51.96	\$69.75	\$87.53	H H D H H H D D Y
	Crane w/ 120' boom or longer	EN-324-SW120	4/2/2008	\$53.51	\$72.07	\$90.63	H H D H H H D D Y
	Crane w/ 120' boom or longer w/ Oiler	EN-324-SW120-O	4/2/2008	\$54.51	\$73.57	\$92.63	H H D H H H D D Y
	Crane w/ 140' boom or longer	EN-324-SW140	4/2/2008	\$54.69	\$73.84	\$92.99	H H D H H H D D Y
	Crane w/ 140' boom or longer W/ Oiler	EN-324-SW140-O	4/2/2008	\$55.69	\$75.34	\$94.99	H H D H H H D D Y
	Boom & Jib 220' or longer	EN-324-SW220	4/2/2008	\$54.96	\$74.25	\$93.53	H H D H H H D D Y
	Crane w/ 220' boom or longer w/ Oiler	EN-324-SW220-O	4/2/2008	\$55.96	\$75.75	\$95.53	H H D H H H D D Y
	Boom & Jib 300' or longer	EN-324-SW300	4/2/2008	\$56.46	\$76.50	\$96.53	H H D H H H D D Y
	Crane w/ 300' boom or longer w/ Oiler	EN-324-SW300-O	4/2/2008	\$57.46	\$78.00	\$98.53	H H D H H H D D Y
	Boom & Jib 400' or longer	EN-324-SW400	4/2/2008	\$57.96	\$78.75	\$99.53	H H D H H H D D Y
	Crane w/ 400' boom or longer w/ Oiler	EN-324-SW400-O	4/2/2008	\$58.96	\$80.25	\$101.53	H H D H H H D D Y

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Crane Operator, Job Mechanic, 3 Drum Hoist & Excavator	EN-324-SWCO 4/2/2008	\$53.15	\$71.53	\$89.91	H H D H H H D D Y
Apprentice Rates:					
0-999 hours		\$42.03	\$54.90	\$67.77	
1,000-1,999 hours		\$43.87	\$57.66	\$71.45	
2,000-2,999 hours		\$45.71	\$60.42	\$75.13	
3,000-3,999 hours		\$47.54	\$63.17	\$78.79	
4,000-4,999 hours		\$49.38	\$65.93	\$82.47	
5,000 hours		\$51.22	\$68.69	\$86.15	
Crane w/ Oiler	EN-324-SWCO-O 4/2/2008	\$54.15	\$73.03	\$91.91	H H D H H H D D Y
Compressor or Welder Operator	EN-324-SWCW 4/2/2008	\$45.70	\$60.36	\$75.01	H H D H H H D D Y
Hoisting Operator, 2 Drum Hoist, & Rubber Tire Backhoe	EN-324-SWHO 4/2/2008	\$52.51	\$70.57	\$88.63	H H D H H H D D Y
Oiler	EN-324-SWO 4/2/2008	\$44.29	\$58.24	\$72.19	H H D H H H D D Y
Tower Crane & Derrick where work is 50' or more above first level	EN-324-SWTD50 4/2/2008	\$54.24	\$73.17	\$92.09	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 4/2/2008	\$55.24	\$74.67	\$94.09	H H D H H H D D Y
Operating Engineer Underground					
Class I Equipment	EN-324A1-UC1 10/8/2007	\$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 10/8/2007	\$40.11	\$52.24	\$64.36	H H H H H H H D Y
Class III Equipment	EN-324A1-UC3 10/8/2007	\$39.38	\$51.14	\$62.90	H H H H H H H D Y
Class IV Equipment	EN-324A1-UC4 10/8/2007	\$38.81	\$50.29	\$61.76	H H H H H H H D Y

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Master Mechanic	EN-324A1-UMM 10/8/2007	\$45.09	\$59.71	\$74.32	H H H H H H D Y

Painter

Painter (8 hours of repaint work performed on Sunday shall be paid time & one half rate)	PT-22-P 5/26/2006	\$38.01	\$50.24	\$62.47	H H D H D D D D N
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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 6/1/2006	\$38.81	\$51.44	\$64.07	H H D H D D D D N
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Pipefitter

Pipefitter	PF-636 6/1/2007	\$55.06	\$74.14	\$89.96	H H D H D D D D N
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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 12/19/2007	\$42.89	\$64.34	\$85.78	H H H H H H D N
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Apprentice Rates:

1st 6 months	\$21.97	\$32.96	\$43.94
2nd 6 months	\$25.46	\$38.19	\$50.92
3rd 6 months	\$28.95	\$43.42	\$57.90
4th 6 months	\$32.43	\$48.65	\$64.86
5th 6 months	\$35.92	\$53.88	\$71.84
6th 6 months	\$39.40	\$59.10	\$78.80

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

County: Oakland

Official Rate Schedule

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

Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

Page 18 of 22

Classification Name Description	Last Updated	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

6/4/2007

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
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6/20/2007

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
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Straight time is not to exceed ten (10) hours per day or forty (40) hours per week.

9/4/2007

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

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

County: Oakland

Official Rate Schedule

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

Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

Page 19 of 22

Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Sheet Metal Worker					
Sheet Metal Worker	SHM-80	\$55.37	\$73.66	\$91.95	H H D H D D D D Y
	10/2/2007				
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	
Siding & Decking					
Siding & Decking	SHM-80-SD	\$37.10	\$49.16	\$61.22	H H H H H H H D Y
	10/1/2007				
Sprinkler Fitter					
Sprinkler Fitter	SP 704	\$55.92	\$75.26	\$94.60	H H D H D D D D Y
	12/5/2007				
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
	7/25/2007				
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	

Official Request #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA
 Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

Official Rate Schedule
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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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Classification	Name	Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
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Terrazzo Worker	TT32-TRW			\$45.29	\$58.48	\$71.67	H H D H D D D D N
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7/25/2007

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

Tile

Tile Finisher	TT32-TF			\$39.59	\$49.93	\$60.27	H H D H D D D D N
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7/25/2007

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
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7/25/2007

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
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7/24/2007

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
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7/24/2007

on euclid type equipment	TM-RB1B			\$35.01	\$36.81		H H H H H H H H Y
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7/24/2007

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

County: Oakland

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Official 2008 Prevailing Wage Rates for State Funded Projects

Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

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Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Underground Laborer Open Cut, Class I					
Construction Laborer	LAUC-Z1-1	\$33.39	\$44.07	\$54.75	H H H H H H D Y
	9/6/2007				
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		
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 D Y
	9/6/2007				
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 D Y
	9/6/2007				
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 D Y
	9/6/2007				
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		

Official Request #: 600

Requestor: TROY SCHOOL DISTRICT

Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER

County: Oakland

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Issue Date: 4/21/2008

Contract must be awarded by: 7/20/2008

Page 22 of 22

Classification Name Description	Last Updated	Straight Hourly	Time and a Half	Double Time	Overtime Provision
Underground Laborer Open Cut, Class V					
Pipe Layer	LAUC-Z1-5	\$33.69	\$44.52	\$55.35	H H H H H H D Y
	9/6/2007				
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		
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 D Y
	9/6/2007				
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 D Y
	9/6/2007				
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 #: 600
 Requestor: TROY SCHOOL DISTRICT
 Project Description: PROJECTORS & DOCUMENT CAMERA

Project Number: ALL ELEMENTARY SCHOOLS & NILES CENTER
 County: Oakland

Official Rate Schedule

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Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
Troy, Michigan

IDS Project No. 03234-1000 BP26

SECTION 00410 - BID FORM

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

PROJECT: Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
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 Projectors and Document Cameras II, TSD Bid No. 9496 Project in accordance with the Drawings and Specifications prepared by Integrated Design Solutions, LLC dated May 7, 2008, and agrees to accept payment as herein provided.

BASE BID

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

_____ Dollars (\$_____).

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

BASE BID BREAKDOWN

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

Material cost only of projection screens, projectors, projector mounts, down pipes, audio amplifiers, speakers, faceplates, cabling, video scalers and other miscellaneous appurtenances. \$ _____

Installation cost (labor only) of projection screens, projectors, projector mounts, down pipes, audio amplifiers, speakers, faceplates, cabling, video scalers and other miscellaneous appurtenances. \$ _____

Material cost only of document cameras, carts, 4 x 1 S-Video switchers, cables and other miscellaneous appurtenances. \$ _____

Installation cost (labor only) of document cameras, carts, 4 x 1 S-Video switchers, cables and other miscellaneous appurtenances. \$ _____

Bid Bond, Performance Bond and Labor and Material Payment Bond Costs \$ _____

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.

Mandatory Alternate No. 1: Provide, install and configure Epson Powerlite 83+ multimedia projectors with a three (3) year warranty in lieu of the Mitsubishi XD490U multimedia projectors included in Base Bid.

Add/Deduct _____ Dollars (\$ _____).

Mandatory Alternate No. 2: Provide, install and configure Epson Powerlite 83+ multimedia projectors with a three (3) year warranty in lieu of the Mitsubishi XD490U multimedia projectors included in Base Bid.

Add/Deduct _____ Dollars (\$ _____).

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

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 No. 1: Cost to provide one (1) digital video projector (no installation).	\$ _____	\$ _____
UP No. 2: Cost to provide and install one (1) digital video projector including Unistrut, mounting bracket, down pipe, faceplates, outlets, cabling, patch cables, labeling and testing (complete).	\$ _____	\$ _____
UP No. 3: Cost to provide one (1) video scaler.	\$ _____	\$ _____
UP No. 4: Cost to provide and install one (1) projection screen including screen and mounting hardware.	\$ _____	\$ _____
UP No. 5: Cost to provide and install one (1) local source sound system including two (2) surface mount speakers, speaker mounting hardware, one (1) audio amplifier, cabling and other required miscellaneous appurtenances.	\$ _____	\$ _____
UP No. 6: Cost to provide one (1) document camera (no installation).	\$ _____	\$ _____
UP No. 7: Cost to provide one (1) document camera cart.	\$ _____	\$ _____
UP No. 8: Cost to provide and install one (1) document camera, one (1) document camera cart including all cabling, patch cables, labeling and testing (complete).	\$ _____	\$ _____
UP No. 9: Cost to provide one (1) 4 x 1 manual S-Video switcher box.	\$ _____	\$ _____
UP No. 10: Cost to provide one (1) digital video projector replacement lamp.	\$ _____	\$ _____
UP No. 11: Cost to provide one (1) document camera replacement lamp.	\$ _____	\$ _____
UP No. 12: Cost to provide one (1) DVI-I to DVI-D and VGA adapter cable.	\$ _____	\$ _____

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:

<u>Task</u>	
Technology Installation	July 1, 2008 to August 15, 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 than the recipient of such bid, and will not be communicated to any such person prior to the official opening of said bid. The undersigned fully understands that no premiums, rebates, or gratuities are permitted either with, prior to or after signing the Contract.

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

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 four (4) 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 _____, 2008, 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)

[Redacted]

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

[Redacted]

the Project is:
(Name and location)

00000-00000 Blank Forms

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

[Redacted]

The Owner and Contractor agree as follows.

ADDITIONS AND DELETIONS:

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

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

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

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

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

ARTICLE 1 THE WORK OF THIS CONTRACT

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

ARTICLE 2 DATE OF COMMENCEMENT AND SUBSTANTIAL COMPLETION

§ 2.1 The date of commencement of the Work shall be the date of this Agreement unless a different date is stated below or provision is made for the date to be fixed in a notice to proceed issued by the Owner.

(Insert the date of commencement, if it differs from the date of this Agreement or, if applicable, state that the date will be fixed in a notice to proceed.)

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

§ 2.3 The Contractor shall achieve Substantial Completion of the entire Work not later than [redacted] 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 [redacted] (\$ [redacted]), 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)
[redacted]	[redacted]	[redacted]

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 [redacted] day of a month, the Owner shall make payment to the Contractor not later than the [redacted] 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 [redacted] ([redacted]) 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.)

[redacted]
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 [redacted], and are as follows:

Document	Title	Pages
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§ 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: [redacted]

§ 5.1.4 The Drawings are as follows, and are dated [redacted] 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: [redacted]

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

Number	Date	Pages
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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
Projectors and Document Cameras II
TSD Bid No. 9496
Troy, Michigan

OWNER: Troy School District
4400 Livernois
Troy, MI 48098

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

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

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

ARTICLE 20

OTHER CONDITIONS OR PROVISIONS

20.1 Add new subparagraph 6.6 as follows:

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

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

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

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

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

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

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

20.4 Add new subparagraph 14.1.2 as follows:

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

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

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

1. Worker's Compensation:

- | | | |
|----|--|--|
| a. | State: | Statutory |
| b. | Applicable Federal
(e.g. Longshoremen's): | Statutory |
| c. | Employer's Liability: | \$1,000,000.00 per Accident
\$1,000,000.00 Disease, Policy Limit
\$1,000,000.00 Disease, Each Employee |

2. Comprehensive or Commercial General Liability (including Premises-Operations; Independent Contractors' Protective; Products and Completed Operations; Broad Form Property Damage);

- | | | |
|----|--|-----------------|
| a. | Bodily Injury: | |
| | \$1,000,000.00 | Each Occurrence |
| | \$1,000,000.00 | Aggregate |
| b. | Property Damage: | |
| | \$1,000,000.00 | Each Occurrence |
| | \$1,000,000.00 | Aggregate |
| c. | Products and Completed Operations to be maintained for one (1) year after final payment: | |
| | \$1,000,000.00 | Aggregate |
| d. | Broad Form Property Damage Coverage shall include Completed Operations. | |

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

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

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

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

20.6 Delete 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, 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 11130 - PROJECTORS AND DOCUMENT CAMERAS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes digital video projectors, document cameras and installation including, but not limited, to the following:

1. Provide and install digital video projectors as follows:
 - a. Provide and install new ceiling mounts and digital video projectors including escutcheon rings, cables, remote control units, faceplates and other accessories.
 - b. Provide and install video scalars.
 - c. Provide and install DVI video splitters.
 - d. Provide spare digital video projectors and lamps.
2. Provide and install document cameras as follows:
 - a. Remove existing document cameras and turn over to the Owner.
 - b. Provide and install new document cameras, carts, cables, and accessories.
 - c. Provide and install wall mounted 4 x 1 manual S-Video switches and adjustable releasable clamps for cable management and strain relief.
 - d. Provide spare document cameras, lamps, and cables.
3. Unpack and assemble all equipment and carts.
4. Deliver existing equipment to the Owner.
5. Provide all necessary cabling and components for a complete and professional installation.
6. Calibrate, configure, and test all equipment.
7. Remove all packing material from school property.
8. Provide documentation for all product types.
9. Provide on-site training to district personnel on the general use and maintenance of the provided equipment.

- B. Related sections that apply to this work:

1. Division 16 – Section 16015 “Technology General Requirements”.

1.3 SYSTEM DESCRIPTION

- A. Provide the services necessary to remove existing and to furnish, install, train, and to provide maintenance support for digital video projectors and document cameras conforming to acceptable industry standards. All work shall be in accordance with the true intent of these Specifications, and as required to leave the digital video projectors and document cameras in complete and satisfactory operating condition.

1. The Owner reserves the right to reject any or all alternate equipment bids and to select the bid that is considered to serve "THE BEST INTEREST OF THE OWNER."

1.4 SUBMITTALS

- A. Upon project close-out, provide the following:
 - 1. Two (2) sets of manufacturer service manuals for the projectors and document cameras.
 - 2. A copy of the manufacturer's certification for the ceiling mount installer.

1.5 PROJECT/SITE CONDITIONS

- A. Verify conditions at the job sites prior to installation within the Troy School District.

1.6 WARRANTY

- A. Warranty period shall commence after all the systems have been placed in working operation and accepted by the Owner by formal written acceptance.
- B. Unless otherwise noted, all systems and components shall be guaranteed free of defects in materials and workmanship for a period of three (3) years or manufacturer warranty, which ever is longer, from the date of acceptance. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Engineer/Technology Designer and the Owner.
- C. All digital video projector lamps shall be guaranteed free of defects in materials and workmanship for a period of one (1) year or manufacturer warranty, which ever is longer, from the date of acceptance. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Engineer/Technology Designer and the Owner

1.7 TRAINING

- A. Training:
 - 1. The video equipment supplier shall provide a minimum of eight (8) hours of instruction and training on the operation and maintenance of the video equipment to Troy School District technical maintenance staff.
 - 2. All training will be provided in two (2) hour blocks maximum and coordinated with District personnel at the Services Building.
- B. Support:
 - 1. The video equipment supplier shall provide twenty-four (24) hours of support to be used at the District's discretion within the first year of installation after substantial completion.

1.8 SPARE PARTS

- A. Provide the following spare parts in addition to the quantities specified elsewhere:
 - 1. Two (2) digital video projectors
 - 2. Two (2) document cameras
 - 3. Twenty-two (22) digital projector lamps
 - 4. Twenty-four (24) spare document camera lamps
 - 5. Five (5) video scalars
 - 6. Five (5) DVI-I to DVI-D + VGA splitter cables

PART 2 - PRODUCT

2.1 DIGITAL VIDEO PROJECTORS

A. Provide digital video projectors with the following minimum specifications:

1. Digital video projector
 - a. DLP
 - b. XGA (1024 x 768) native resolution
 - c. 3000 ANSI lumens
 - d. 2500:1 contrast ration
 - e. Vertical and horizontal digital keystone correction
 - f. Inputs: (2) RGB, (1) DVI, (1) S-Video, (1) Composite, (2) stereo mini jack
 - g. Outputs: (1) RGB, (1) stereo mini jack
 - h. Minimum 2 watt amplifier with internal speaker
 - i. Warranty: (3) year projector, one (1) year lamp
 - j. AC power cord
 - k. AV cables
 - l. IR remote control with batteries
 - m. Manuals and documentation
 - n. Digital video projector shall be a Mitsubishi XD490U or Engineer approved equivalent.
2. Projector mount and bracket
 - a. For each ceiling mounted projector, provide the following:
 - 1) Projector mount shall be a Peerless Industries PRS Series projector mount kit Model PRS-242 which includes a projector mount and an adapter plate.
 - 2) Ceiling plate shall be a Peerless Unistrut adapter ACC 550.
 - 3) Contractor shall provide and install Unistrut support members, clamps, threaded pipe, escutcheon rings and other appurtenances necessary for a complete and professional installation.
 - 4) Contractor shall provide and install 1-1/2" NPT black mounting pipes. Contractor shall field verify mounting pipe lengths.

2.2 FRONT-PROJECTION SCREENS

A. Manually Operated Screens, General: Manufacturer's standard spring-roller-operated units, consisting of case, screen, mounting accessories, and other components necessary for a complete installation.

1. Screen Mounting: Top edge securely anchored to a 3-inch diameter, rigid steel roller; bottom edge formed into a pocket holding a tubular metal slat, with ends of slat protected by plastic caps, and with a saddle and pull attached to slat by screws.

- B. Surface-Mounted, Metal Encased, Manually Operated Screens: Units designed and fabricated for surface mounting on wall or ceiling, fabricated from formed steel sheet not less than **0.027 inch** thick or aluminum extrusions; with flat back design and baked-enamel finish, wood grain vinyl not acceptable. Provide end caps and universal mounting brackets, finished to match end caps. For ceiling mounted units provide manufacturers T-Bar scissors clip.

1. Products:

- a. Da-Lite Screen Co., Inc.; Model C.
- b. Draper Inc.; Luma 2.

C. Screen Material and Viewing Surface:

1. Matte-White Viewing Surface: Peak gain of 0.9 to 1.0, and gain of not less than 0.8 at an angle of 50 degrees from the axis of the screen surface.

a. Products:

- 1) Da-Lite Screen Co., Inc.; Da-Mat.
- 2) Draper Inc. Fiberglass Matte White.

2. Material: Vinyl-coated glass-fiber fabric.
3. Mildew Resistance: Rating of 0 or 1 when tested according to ASTM G 21.
4. Flame Resistance: Passes NFPA 701.
5. Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.
6. Seamless Construction: Provide screens, in sizes indicated, without seams.
7. Edge Treatment: Without black masking borders.
8. Size of Viewing Surface:

- a. 60 inches high by 80 inches wide, 100 inches diagonal.

2.3 VIDEO SCALER

- A. Provide video scalers with the following minimum specifications:

1. Video Scaler:

- a. Up-conversion from video to VGA, SVGA or XGA
- b. Comb filter decoding of the video signal
- c. Selectable outputs of 640 x 480, 800 x 600 or 1024 x 768
- d. Automatic input standards selection for NTSC, PAL, PAL M, PAL N or SECAM
- e. Composite video input via an RCA connector with stereo audio via 2 RCA connectors
- f. S-Video input via a 4-pin mini-DIN connector with stereo audio via 2 RCA connectors
- g. Computer loop-thru input via an HD15 female connector with stereo audio via mini phone connector
- h. VGA output via HD15 female connector with stereo audio via mini phone connector
- i. On-screen display for ease of setup
- j. Adjustable control of brightness, contrast, color and tint
- k. 115 VAC to +12 VDC @ 500mA power adapter included

- l. Size: 1.8" high x 9.3" wide x 5.1" deep
 - m. Weight: 14 ounces (0.4kg)
 - n. One year limited warranty
 - o. Video scaler shall be a TV One, AV Toolbox AVT-3340 or engineer approved equivalent.
2. Video Scaler Patch Cables:
 - a. For each video scaler provide the following:
 - 1) One (1) 6' RCA video patch cable.
 - 2) One (1) 6' S-Video patch cable.
 - 3) One (1) 6' VGA patch cable.
 - 4) One (1) 6' 3.5mm audio patch cable.

2.4 AUDIO/VIDEO INTERFACES

- A. Provide the following Decora style active audio/video interface as indicated on the drawings.
 1. Active computer video and stereo audio interface.
 2. Single-gang Decora style wall plate.
 3. Video output via five (5) BNC female cable array.
 4. Active balanced stereo output via 5-position screw-down terminal block.
 5. Video bandwidth 700MHz @ -3.0dB, audio bandwidth 20Hz to 20kHz (\pm 0.052B).
 6. User adjustable gain via DIP switch settings.
 7. 8-14v DC remotely powered up to 150 feet away.
 8. Decora style audio/video interface shall be a FSR CI-5BWPA or engineer-approved equivalent.
- B. Provide the following external under table mount active audio/video interface as indicated on the drawings.
 1. Active computer video and stereo audio interface.
 2. Under table style metal enclosure.
 3. Video output via five (5) female BNC connectors.
 4. Local video loop back.
 5. Active balanced stereo output via 5-position screw-down terminal block.
 6. Video bandwidth 400MHz @ -3.0dB, audio bandwidth 20Hz to 20kHz (\pm 0.05dB).
 7. User adjustable gain via jumper.
 8. 8-14v DC remotely powered up to 150 feet.
 9. Under table mount active audio/video interface shall be a FSR CI-5UT of engineer approved equivalent.

2.5 LOCAL SOUND SYSTEM

- A. For each ceiling mounted projector provide the following:
 1. Audio Amplifier:
 - a. One (1) balanced or unbalanced stereo input.
 - b. One (1) stereo or two (2) mono outputs.
 - c. 32 watts (16 watts/channel @ 4 ohms, 8 watts/channel @ 8 ohms).
 - d. S/N: >84dB @ 20Hz to 20kHz at maximum output.

- e. Control: RS-232, IR.
- f. Test tones, auto ducking, PA detect circuit, on-board mixer.
- g. Thermal and short circuit protection.
- h. Four (4) settable gain levels.
- i. Input Power: 12VDC – 15VDC, up to 3.5A. Output Power: 12VDC – 15VDC, up to 0.5A.
- j. Audio amplifier shall be a Calypso Control Systems CA-500 amplifier or engineer approved equivalent.

2. Surface Mount Loudspeakers:

- a. Freq. Range (-10 dB)1: 85 Hz - 22 kHz
- b. Power Capacity: 50 Watts Continuous Program Power
- c. Nominal Sensitivity: 86 dB SPL @ 1 m (3.3 ft)
- d. Nominal Coverage Angle: 130° conical coverage
- e. Directivity Factor (Q): 4.8
- f. Directivity Index (DI): 6.8
- g. Rated Maximum SPL: 86 dB @ 1 m (3.3 ft)
- h. Nominal Impedance: 8 ohms
- i. Low-Frequency: 3-1/2" polypropylene-coated woofer
- j. High-Frequency: 1/2" titanium coated hand loaded tweeter
- k. Enclosure: High impact polystyrene
- l. Dimensions (H x W X D): 7.6" x 5.5" x 4.4" .
- m. Net Weight: 4 lbs.
- n. The speakers shall be rotatable over a minimum $\pm 35^\circ$ in all directions via a ball type mounting system.
- o. Loud speaker shall be a JBL Professional Control Contractor's Series 23 or engineer approved equivalent.
- p. The speakers shall be equipped will all the necessary mounting hardware and grilles.

2.6 VIDEO SPLITTER CABLE

- A. For each projector location, provide the following:

- 1. Provide DVI-I male to DVI-D female + VGA female splitter cables.

2.7 DOCUMENT CAMERAS

- A. Provide document cameras with the following minimum specifications:

- 1. 1/3" progressive scan CCD
- 2. 850,000 pixels
- 3. Powered zoom (15x optical, 4x digital)
- 4. Auto and manual focus (powered)
- 5. Auto and manual white balance
- 6. Auto and manual color adjustment
- 7. Auto and manual brightness adjustment
- 8. Color/B&W selection
- 9. Negative/positive selection
- 10. Image rotation
- 11. Upper adjustable lighting arm
- 12. Rotatable and adjustable camera head
- 13. Maximum 15" x 19" base
- 14. Inputs: (1) RGB

15. Outputs: (1) RGB, (1) S-Video, (1) composite, (1) DVI
16. PC interface: RS-232C, USB
17. Warranty: Three (3) year
18. AC power cord
19. AV cables
20. IR remote control with batteries
21. Manuals and documentation
22. Document camera shall be an ELMO P30 or Engineer approved equivalent

2.8 S-VIDEO SWITCH

- A. For each document camera location, provide the following:
1. Provide 4 x 1 manual S-Video switches and cables with the following minimum specifications:
 - a. 4 S-Video inputs, 1 S-Video output
 - b. Bandwidth: 20Hz~10MHz
 - c. Isolation: 30dB minimum
 - d. Warranty: One (1) year manufacturer
 - e. Manufacturer: Terk
 - f. Model: VS-4
 2. S-Video patch cables:
 - a. One (1) 10' S-Video patch cable
 - b. One (1) 3' S-Video patch cable

2.9 AUDIO/VIDEO 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 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 shall be 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.

B. Audio/Video Patch Cables:

1. For each projector installation provide the following:
 - a. One (1) 25' VGA patch cable.
 - b. One (1) 25' 3.5mm audio patch cable.

2.10 FURNITURE

A. Document Camera/Portable Projector Carts:

1. Provide and assemble adjustable AV carts with the following minimum specifications:
 - a. Color: Black
 - b. Electrical assembly with 3 grounded outlets, 20 ft. grounded extension cord. UL listed.
 - c. 26" to 42" height adjustable. Three 18" x 24" shelves. 4" swivel casters, 2 lockable.
 - d. 1 rubber mat on the top shelf.
 - e. Assemble and adjust height per Owner's specification.
 - f. Document camera cart shall be a Bretford Basics Model A26242EA or a HWilson model W42AE or engineer approved equivalent.

2.11 LABELING

- A. The contractor shall install District supplied asset tags on all digital video projectors and document camera equipment provided under this bid. The contractor shall populate a District supplied Microsoft Excel database with the following information:
1. District asset tag number
 2. Building/location
 3. Digital video projector/document camera identification number
 4. Manufacturer serial number
 5. Install Date
- B. The contractor shall provide and install Brother P-Touch or equivalent labels on all 4 x 1 S-Video switch inputs as follows:
1. Input One (1): Computer.
 2. Input Two (2): Document Camera
- C. The contractor shall stencil identification information on all projector carts and document camera carts. The Owner will provide stencils, ink and rollers for the contractors use.

- D. The contractor shall provide and install mechanically produced labels on the faceplates.

2.12 VIDEO EQUIPMENT

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

PART 3 - EXECUTION

3.1 INSTALLATION-GENERAL

- A. Remove existing document cameras and deliver to Owner.
- B. Provide and install digital video projector ceiling mounting brackets.
- C. Provide and install digital video projectors and accessories.
- D. Provide, assemble and install digital video projector AV carts.
- E. Provide, assemble and install document camera AV carts.
- F. Provide and install document cameras and accessories.
- G. Apply Owner provided asset tag to all projectors and document cameras.
- H. Record the asset tag number, building/location, identification number, manufacturer serial number and installation date in an Owner provided Microsoft Excel database.
- I. Remove all packing material from school properties. District waste receptacles shall not be used.
- J. Calibrate, configure, and test all equipment.
- K. Any system or component that fails during installation shall be replaced upon discovery.

3.2 INSTALLATION-TYPICAL CEILING MOUNT PROJECTOR

- A. Provide and install Unistrut support members, clamps, threaded pipe and other necessary appurtenances.
- B. Remove all ceiling tile required for the installation of the projector mounting brackets and to route cabling. Cut and cope tile as required to accommodate installation of mounting brackets. Provide and install stainless steel escutcheon rings.
- C. Reinstall all ceiling tile removed for the installation.
- D. Where ceiling tile is damaged by this contractor, provide new ceiling tile of the same manufacture and style as the damaged tile.

- E. Provide and install Peerless Unistrut adapters.
- F. Provide and install 1-1/2" NPT black mounting pipes.
- G. Provide and install digital video projectors and accessories.
- H. Provide and install Peerless PRS Series mounting kits including projector mounts and adapter plates.
- I. Configure digital video projector lamp to operate in "low mode".
- J. Mount projector to ceiling following the manufacturer's instructions.
- K. Provide and install audio/video cabling into existing conduit and raceway between the A/V faceplate and the projector.
- L. Provide and install faceplates, frames, jacks, inserts and blanks necessary to reconfigure existing faceplates as specified.
- M. Provide and install new faceplates, frames, jacks, inserts and blanks as specified.
- N. Provide and install an audio amplifier at each projector location.
- O. Provide and install surface mount loudspeakers and cabling.
- P. Disconnect existing LCD monitor from the existing computer.
- Q. Provide and install a DVI to DVI + VGA splitter cable.
- R. Reconnect LCD monitor to DVI to DVI + VGA splitter cable using an Owner provided DVI cable.
- S. Connect the VGA output of the DVI to DVI + VGA splitter cable to the contractor provided A/V faceplate using a contractor provided VGA PATCH cable.
- T. Provide and install a 12 volt DC power supply to power the audio amplifier and A/V faceplate. Refer to technology drawings for interconnection details.
- U. Apply Owner provided asset tags to all projectors.
- V. Provide and install labels on all new and reconfigured faceplates.
- W. Provide and install Velcro tie wraps and wire loom to dress out all cabling in a neat and professional manner. Plastic tie wraps are unacceptable.
- X. Record the asset tag number, building/location, identification number, manufacturer serial number and installation date in an Owner provided Microsoft Excel database.
- Y. Remove all packing material from school properties. District waste receptacles shall not be used.
- Z. Calibrate, configure, and test new projector with the Owners existing computer source device.
- AA. Adjust video gain on the A/V faceplate as necessary.

- BB. Adjust audio gain on the audio amplifier as necessary.
- CC. Refer to technology drawings for faceplate configurations, mounting and interconnection details.
- DD. Any system or component that fails during installation shall be replaced upon discovery.

3.3 INSTALLATION-TYPICAL PORTABLE PROJECTOR

- A. Unpack and assemble new audiovisual cart.
- B. Install new projector on new audiovisual cart.
- C. Cable and dress the new projector on the new audiovisual cart per the Owners specifications. Include a Velcro strap to secure the projector to the audiovisual cart.
- D. Calibrate, configure, and test new projector with the Owners existing source devices.

3.4 INSTALLATION – TYPICAL PROJECTION SCREEN

- A. General: Install projection screens at locations indicated to comply with screen manufacturer's written instructions.
- B. Remove existing projection screens and mounting hardware as indicated and deliver to Owner.
- C. Install front-projection screens with screen cases in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered.
 - 1. Test manually operated units to verify that screen operating components are in optimum functioning condition.

3.5 INSTALLATION-TYPICAL DOCUMENT CAMERA LOCATED IN CLASSROOMS

- A. Unpack and assemble new audiovisual cart.
- B. Install new document camera on new audiovisual cart.
- C. Cable and dress the new document camera on the new audiovisual cart per the Owners specifications. Include Velcro to secure the document camera to the audiovisual cart.
- D. Wall mount the 4 x 1 manual S-Video switcher using contractor provided Velcro fasteners.
- E. Disconnect existing S-Video cable from the CCP to the desktop computer.
- F. Reconnect existing S-Video cable from the desktop computer to the S-Video switcher input 1.
- G. Connect the document camera to the S-Video switcher input 2 using a 10' contractor provided S-Video cable.
- H. Connect the S-Video switcher output to the CCP using a 3' contractor provided S-Video cable.

- I. Dress and secure S-Video cables to the CCP wall using a contractor provided adjustable and releasable strain relief clamp.
- J. Calibrate, configure, and test the new document camera with the Owners existing source devices.
- K. Refer to technology drawings for interconnection details.

3.6 SCHEDULE

- A. Deliver, install, calibrate, configure and test all projectors, document cameras, carts and accessories between July 1, 2008 and August 15, 2008. Substantial completion is upon Owners acceptance.

3.7 INSTALLATION-SITE REQUIREMENTS

Building	Ceiling Mount Projector	Projection Screen	Audio Amplifier	Surface Mount Speaker	Video Scaler	Cart Mount Projector	Portable Projector Cart	Document Camera	Document Camera Cart	S-Video Switch
Barnard Elementary	2	2	2	4	2	---	---	---	---	---
Bemis Elementary	2	2	2	4	2	---	---	---	---	---
Costello Elementary	1	1	1	2	2	1	1	24	24	24
Hamilton Elementary	2	2	2	4	2	---	---	---	---	---
Hill Elementary	1	1	1	2	1	---	---	---	---	---
Leonard Elementary	1	1	1	2	1	---	---	---	---	---
Martell Elementary	1	2	1	2	1	1	1	---	---	---
Morse Elementary	1	1	1	2	1	---	---	---	---	---
Schroeder Elementary	1	1	1	2	1	---	---	---	---	---
Troy Union Elementary	1	1	1	2	1	---	---	---	---	---
Wass Elementary	2	2	2	4	2	---	---	---	---	---
Wattles Elementary	2	2	2	4	2	---	---	---	---	---
Niles Continuing Ed	3	2	3	6	3	---	---	---	---	---
Total Quantity	20	20	20	40	21	2	2	24	24	24

3.8 TESTING AND CALIBRATION

- A. Ceiling mount projectors:
 - 1. Adjust for maximum image size on the Owners existing screens.
 - 2. Adjust focus, brightness, contrast, color settings and keystone as necessary for a proper image in an educational environment.
 - 3. Adjust audio to avoid clipping and distortion. Adjust volume to be heard clearly from viewing position.
- B. Portable projectors:
 - 1. Adjust focus, brightness, contrast, and color settings as necessary for a proper image in an educational environment.

C. Document cameras:

1. Adjust focus, brightness, contrast, and color settings as necessary for a proper image in an educational environment.

END OF SECTION 11130

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, apply to work of this Section.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements for technology installations.

1. References.
2. Work restrictions.
3. Temporary facilities and controls.
4. Related work provided by others.
5. Design requirements.
6. Performance requirements.
7. Substitutions.
8. Permits and fees.
9. Examination of drawings and premises.
10. Job conditions.
11. Submittals – Bid Proposal Requirements.
12. Project record documents.
13. Quality assurance.
14. Delivery, storage and handling.
15. 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 REFERENCES

- A. Specifications & Drawings To be Cooperative:

1. These Specifications and accompanying Drawings are intended to describe and provide for finished work. They are intended to be cooperative and what is called for by either shall be as binding as if called for by both. The Drawings accompanying the Specifications are intended to show the general design and arrangement of the installation and in some cases are more or less diagrammatic. They are not intended to serve as shop drawings nor are they to be scaled for dimensions or exact locations of equipment.

2. It is the intent of the Drawings and Specifications to provide for a complete and satisfactory installation. The Contractor shall furnish Labor and/or materials neither shown nor specified but obviously necessary for the completion of the proper functioning of the systems.
3. Drawings pertaining to this specification shall be considered as a part of said specification and shall be a part of the bid documents.
4. 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.

B. Specification Format and Content Explanation:

1. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division format and MASTER FORMAT numbering system.
2. Words, which have well known technical or construction industry meanings are used in the Contract Documents in accordance with such, recognized meanings.
3. Abbreviated Language: In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an" but the fact that a modifier or an article is absent from a statement and appears in another is not intended to affect the interpretation of either statement.
4. Trades: Use of titles such as "carpentry" is not intended to imply that certain construction activities must be performed by accredited or unionized individuals of a corresponding generic name, such as "carpenter." It also does not imply that requirements specified apply exclusively to tradespersons of the corresponding generic name.

C. Definitions:

1. Indicated: Refers to graphic representations, notes or schedules on the Drawings, or other Paragraphs or Schedules in Specifications, and similar requirements in Contract Documents. Where terms such as "shown", "noted", "scheduled", and "specified" are used, it is to help locate the reference; no limitation on location is intended except as specifically noted.
2. Directed: Terms such as "directed", "requested", "authorized", "selected", "approved", "required", and "permitted" mean "directed by the Architect", "requested by the Architect", and similar phrases. However, no implied meaning shall be interpreted to extend the Architect's responsibility into the Contractor's area of construction supervision.
3. Approve: The term "approved", where used in conjunction with the Architect's action on the contractor's applications and requests, is limited to the duties and responsibilities of the Architect as stated in General and Supplementary Conditions. Such approval shall not release the Contractor from responsibility to fulfill Contract requirements unless otherwise provided in the Contract Documents.
4. Regulation: The term "Regulations" includes laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, as well as rules, conventions, and agreements within the construction industry that control performance of the Work, whether lawfully imposed by authorities having jurisdiction or not.
5. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."
6. Install: The term "install" is used to describe operations at project site including the actual "unloading, unpacking, assembly, erection, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations."
7. Provide: The term "provide" means "to furnish and install, complete and ready for the intended use."

8. **Installer:** An "Installer" is the Contractor engaged by the Contractor, either as an employee, subcontractor, or sub-subcontractor for performance of a particular construction activity, including installation, erection, application, and similar operations. Installers are required to be experienced in the operations they are engaged to perform.
9. **Project Site:** Is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other construction activities as part of the Project. The extent of the Project Site is shown on the Drawings and may or may not be identical with the description of the land upon which the Project is to be built.
10. **Testing Laboratories:** A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, either at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.4 WORK RESTRICTIONS

- 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 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.
- F. Use of Premises: Limit the use of the premises to work in areas indicated. Do not disturb portions of the site beyond areas in which the Work is indicated. Allow for Owner occupancy and use by the public
1. Confine operations to areas within Contract limits indicated. Portions of the site beyond areas in which construction operations are indicated are not to be disturbed.
- G. Use of Existing Building: Maintain the existing building in a weather-tight and secure condition throughout the construction period. Repair damage caused by construction operations. Take all precautions necessary to protect the building and its occupants during the construction period.
1. The Contractor and each Subcontractor will be expected to have visited the site and appraise the existing situation and circumstances of operation.
 2. Consult with the Owner as to the availability of space for storage of materials and places of access to the work, etc. Materials and equipment must be placed to avoid interferences with the Owner's operations and shall be moved when so required.
 3. Comply with the Owner's requirements with regard to entrance, movement within and exit of all trucks, equipment, and personnel.
 4. The Owner reserves the right to perform construction work similar in nature to the work included under this Contract, in the same area concurrently with the Contractor, with his own forces, or with other Contractors, without conflict of any nature.
- H. Full Owner Occupancy: The Owner will occupy the site and existing building during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner operations.
- I. Owner's Right to Place Equipment: The Owner reserves the right to occupy and to place and install equipment in completed areas of the building, prior to Substantial Completion, provided that such occupancy does not interfere with completion of the Work. Such placing of equipment and partial occupancy shall not constitute acceptance of the total Work.
- J. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- K. Utility Tie-Ins: All utility connections, disconnections, tie-ins, shut-downs, and similar work to existing services which would interfere with Owner's operations, must be performed on premium or overtime (Owner's non-standard work hours) basis with all costs included in the proposal lump sum price. All required connections, disconnections, tie-ins and shut-downs of system shall be scheduled in advance, prearranged and approved by the Owner's Representative.
- L. No welding, flame cutting or other operations involving the use of flame, arcs or sparking devices will be allowed, unless prior approval is obtained from the Owner's Representative and all precautions are taken, including temporary fire resistant barriers and stand-by fire extinguishers.

- M. Damage to Other Work: The Contractor shall repair, replace, or touch-up all finished surfaces in the existing building which may be damaged as a result of his work or operations.
- N. Utilities or other services encountered or otherwise found shall be protected from any damage, unless or until they are abandoned. If the utilities or services are not abandoned, immediately repair any damage from work and operations of this Contract. Immediately repair any damage from the Work or operations and restore the utilities and services to an equal or better condition than that which existing prior to the damage or disruption.
- O. Enforce strict discipline and good order among the Contractor's employees and subcontractor's.
 - 1. Foul or abusive language or demeanor will not be tolerated.
 - 2. Contractor's employees and subcontractor's shall dress in a neat workmanlike manner.
- P. Smoking is prohibited anywhere on school property.
- Q. Possession, sale or consumption of alcoholic beverages on Owner's property is strictly prohibited.
- R. The manufacturing, distribution, dispensing, possession or use of unlawful drugs on Owner's property is strictly prohibited and may result in criminal prosecution.

1.5 TEMPORARY FACILITIES AND CONTROLS

- A. Temporary Parking: Park in designated spaces only.
 - 1. Do not park vehicles on sidewalks or lawn areas surrounding the building unless written approval is received from the Owner.
 - 2. Loading and unloading shall be done only at the loading dock. Coordinate use of loading dock with Owner.
 - a. No vehicles shall be left unattended for more than 30 minutes and no vehicle will be permitted to be left in the loading dock overnight.
- B. Contractor Employee Identification: All persons working on-site are required to have and wear an identification badge at all times. Badges will be provided by the Owner at no charge and must be returned to the Owner.
- C. Waste Material Removal and Cleaning: Remove and properly dispose of, on a daily basis all waste materials and debris resulting from the Work. The Project and adjacent grounds shall be kept free of accumulations of rubbish.
 - 1. Construction debris shall not be stored overnight, nor shall it be left in common corridors. Keep debris confined to work areas only until such time as it is being removed.
 - 2. No burning of waste materials will be permitted on the premises.
 - 3. In addition to the general "broom cleaning" stipulated in the General Conditions, the Contractor shall be responsible for the following special cleaning for all trades just prior to the final completion of the Project.
 - a. Remove sealant and paint from all glass and polish same.
 - b. Clean and polish all finish hardware.
 - c. Remove all spots, soil and paint from all walls.
- D. Use of Owner's Cafeteria: Contractor will not be allowed the use of Owner's cafeteria.

1.6 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.

1.7 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.

1.8 SUBMITTALS – BID PROPOSAL REQUIREMENTS

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

D. Description of Contents:

1. Tab No. 1, Cover Letter, shall include an executive overview of the project and depicting this contractor's complete understanding of the project.
2. Tab No. 2, Bid Proposal Form shall include a completed bid proposal as found in Section 00410, and the bid bond as a requirement to submit a qualified bid.
3. Tab No. 3, Voluntary Alternates, in a section, which is optional and made available to permit all bidders to submit alternates to the bid documents. These voluntary alternates shall clearly define the intent of the alternate, cost impact to implement the alternates, and a description of the deviation in functions and features between the alternates and the base bid documents. Include catalog cuts in this section for each alternate product required. The catalog cuts shall be keyed to the description of the alternate. Each alternate shall be independent of any alternate and shall be uniquely identified i.e. TAL -1 (Technology Alternate No. 1) TAL-2, TAL-3, etc.
4. Tab No. 4, List the names and company profiles for Prime Contractor, Major Subcontractors and Major Suppliers. In addition to the above information, describe each of the following:
 - a. The roles of the Prime Contractor, Subcontractors and Suppliers.
 - b. Description of corporate history for the Prime Contractor and planned Subcontractors, including dates of incorporation/founding, dates of any corporate mergers and/or acquisitions of Contractors and all present and former subsidiaries.
 - c. The number of years installing similar systems in facilities similar to the Owner's.
 - d. List of references that would be considered peers to the Owner utilizing similar systems.
 - e. Name of active projects, their sites and scope of work.
 - f. Provide recent customer references for similar work performed during the past twelve (12) months and provide documentation on installation staff training and certification.
 - g. Indicate whether Prime Contractor or any planned Subcontractor are currently in litigation over other projects or have been involved in litigation over other projects in the previous five (5) years.
5. Tab No. 5, Organizational Chart, shall depict the prime contractor, the subcontractors, major suppliers, trainers, project managers, name of project leader, superintendents, executive staff of each firm, service staff, the names of the individuals occupying those positions, telephone numbers, facsimile numbers, and E-mail addresses of all individuals on the organizational chart.
 - a. Provide a detailed schedule on a building-by-building basis indicating specific dates that you would plan to be working within the buildings. This schedule shall include major milestones required to achieve the completion dates previously specified.
6. Tab No. 6, Wiring and equipment shall include the following information:
 - a. Description of system operation.
 - b. Complete bill of materials indicating quantities, take-offs for the products being provided. The bill of materials shall separate labor and materials cost on a building-by-building basis.
 - c. Equipment model numbers.
 - d. Catalog cuts for all equipment being provided.
 - e. Manufacturer's product specifications and installation instructions.
 - f. A complete itemization of software products with catalog cuts.

- g. Software product specifications and installation instructions.
- h. System interconnection drawings or flow diagrams.

7. Tab Nos. 7 and 8 are self-descriptive as to their intended content.

1.9 CONTRACT MODIFICATION PROCEDURES

- A. Bulletins: After award of Contract, the Contractor as required shall quote changes in the work described in Bulletins or otherwise.
- B. Except as otherwise specifically mentioned, the general character of the work covered by these Bulletins shall be the same as originally specified for the project and all incidental items required in connection with the work hereinafter described shall be included even though not specifically mentioned. Where an item is mentioned with no additional specifications given, reference is to be made to the original specifications. All applicable parts of the original specifications shall apply.
- C. Submit detailed itemized quotations for each item of work described, stating fully the amounts for additions and deductions.
- D. Quotations should be received by the Technology Designer/Engineer within two (2) weeks of issuance of the Bulletin.

1.10 PAYMENT PROCEDURES

- A. Schedule of Values: Submit the Schedule of Values as a preliminary Application for Payment to the Technology Designer/Engineer at least 7 days before submittal of the initial Application for Payment.
 - 1. Format and Content: Use AIA Documents G702 and G703.
 - a. Provide a breakdown of the Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports. Break principal subcontract amounts down into several line items.
 - b. Round amounts off to the nearest whole dollar; the total shall equal the Contract Sum.
 - c. Where an Application for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed, provide separate line items on the Schedule of Values for initial cost of the materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
 - d. Margins of Cost: Show line items for indirect costs, and margins on actual costs, only to the extent that such items will be listed individually in Applications for Payment. Each item in the Schedule of Values and Applications for Payment shall be complete including its total cost and proportionate share of general overhead and profit margin.
 - 1) At the Contractor's option, temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense.

- B. Each Application for Payment shall be consistent with previous applications and payments as certified by the Technology Designer/Engineer and paid for by the Owner.
 - 1. The Application for Payment at time of Substantial Completion and the final Application for Payment involve additional requirements.
- C. Payment Application Times: The date for each progress payment submission is the 10th day of each month. The period of construction Work covered by each Application for Payment is the period ending 10 days prior to the date for each progress payment and starting the day following the end of the preceding period.
- D. Application Preparation: Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.
 - 1. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.
- E. Transmittal: Submit 3 executed copies of each Application for Payment to the Architect. One copy shall be complete, including waivers of lien and similar attachments, when required.
 - 1. Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Technology Designer/Engineer.
- F. Waivers of Mechanics Lien: With each Application for Payment, submit waivers of mechanics lien from every entity who may lawfully be entitled to file a mechanics lien arising out of the Contract, and related to the Work covered by the payment.
 - 1. Submit partial waivers on each item for amount requested, before deduction for retainage, on each item.
 - 2. Where an application shows completion of an item, submit final or full waivers.
 - 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
- G. Application for Payment at Substantial Completion: Actions and submittals that shall proceed or coincide with this application include:
 - 1. Occupancy permits and similar approvals.
 - 2. Warranties (guarantees) and maintenance agreements.
 - 3. Test/adjust/balance reports.
 - 4. Maintenance instructions.
 - 5. Start-up performance reports.
 - 6. Change-over information related to Owner's occupancy, use, operation and maintenance.
 - 7. Final cleaning.
 - 8. Application for reduction of retainage, and consent of surety.
 - 9. Punch list of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.

- H. Final Payment Application: Actions and submittals that shall precede or coincide with this application include:
1. Completion of Project closeout requirements.
 2. Completion of items specified for completion after Substantial Completion.
 3. Transmittal of required Project construction records to Owner.
 4. Proof that taxes, fees and similar obligations have been paid.
 5. Removal of temporary facilities and services.
 6. Removal of surplus materials, rubbish and similar elements.
 7. Delivery of spare parts.

1.11 PROJECT MANAGEMENT AND COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection and operation.
- B. Pre-Construction Conference:
1. Technology Designer/Engineer will schedule a pre-construction conference at the Project site after execution of the Agreement and prior to commencement of construction to review responsibilities and personnel assignments.
 2. Attendees: The Owner, the Technology Designer/Engineer, the Contractor and its superintendent, major subcontractors, manufacturers, suppliers and other concerned parties shall each be represented at the conference.
 3. Agenda: Discuss items of significance that could affect progress including such topics as:
 - a. Tentative construction schedule.
 - b. Critical Work sequencing.
 - c. Designation of responsible personnel.
 - d. Procedures for processing field decisions and Change Orders.
 - e. Procedures for processing Applications for Payment.
 - f. Distribution of Contract Documents.
 - g. Preparation of record documents.
 - h. Use of the premises.
 - i. Office, Work and storage areas.
 - j. Equipment deliveries and priorities.
 - k. Safety procedures.
 - l. First aid.
 - m. Security.
 - n. Housekeeping.
 - o. Working hours.
- C. Progress Meeting:
1. Progress meetings with the Contractor will be held by the Technology Designer/Engineer and Owner at regular intervals as directed. The Minutes of these meetings will be recorded by the Technology Designer/Engineer and copies sent to all interested parties. The dates of progress will be coordinated with preparation of payment request.

2. Agenda: Review and correct or approve minutes of the previous progress meeting. Include topics for discussion as appropriate to the current status of the Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine where each activity is in relation to the Contractor's Construction Schedule, whether on time or ahead or behind schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - b. Review including such items as:
 - 1) Interface requirements.
 - 2) Time.
 - 3) Sequences.
 - 4) Deliveries.
 - 5) Off-site fabrication problems.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and services.
 - 9) Hours of Work.
 - 10) Hazards and risks.
 - 11) Housekeeping.
 - 12) Quality and Work standards.
 - 13) Change Orders.
 - 14) Documentation of information for payment requests.

1.12 CONSTRUCTION PROGRESS DOCUMENTATION

- A. Construction Schedule: Submit a comprehensive, fully developed, construction schedule.
 1. Submit schedule within two (2) weeks after award of Contract. Base schedule on the Times of Completion specified for the Project.
 2. Update construction schedule monthly after construction progress meetings, to reflect actual construction progress and activities.
 3. Indicate each significant construction activity separately.
 4. Time Frame: Extend schedule from date established for commencement of the Work to date of final completion.
 5. Activities: Treat each story or separate area as a separate activity for each principal element of the Work. Comply with the following:
 - a. Procurement Activities: Include procurement activities for long lead items. Procurement activities include, but are not limited to, submittals, approvals, purchasing, fabrication and delivery.
 - b. Start-Up and Testing Time: Include time for start-up and testing.
 - c. Substantial Completion: Indicate completion in advance of date of substantial completion, allow time for Architect's inspection and punch list.
 6. Constraints: Include constraints and work restrictions.
 - a. Phasing: Arrange list of activities on schedule by phase.
 - b. Work by Owner: Indicate a separate activity for each portion of Work performed by Owner.

- c. Work Restrictions: Show effect on the schedule of limitations of continued occupancies, uninterruptible services, use of premises restrictions, and provisions for future construction.
 - d. Work Stages: Indicate important stages of construction for each major portion of the Work.
7. Milestones: Include milestones such as Notice to Proceed, Substantial Completion and Final Completion.

1.13 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.

1.14 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.

1.15 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.

1.16 WARRANTY

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

1.17 PRODUCTS - 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."

1.18 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.

1.19 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".

1.20 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.

1.21 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.

1.22 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.

1.23 CUTTING AND PATCHING

- A. Direct miscellaneous cutting and patching of the existing building construction for the installation of the Technology Work.
- B. 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.
- C. 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.
- D. Cutting of holes through floors and walls shall be done only at such locations as may be directed by the Engineer/Technology Designer.
- E. Cooperate with the other Contractors so that all cutting and repairing in any given area will be done simultaneously.

1.24 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, 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.
- 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 and integrating the following principal systems:
 - 1. Data Distribution Equipment
 - 2. Data Wiring
 - 3. LAN Hardware
 - 4. Ethernet Switches
- 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.
- K. Related sections that apply to this work:
 - 1. Division 16 – Section 16015 “Technology General Requirements”

1.3 SYSTEM DESCRIPTION

- A. This contract consists of providing a limited number of category 6 data drops within the elementary school buildings to support end-user computers located in the vicinity of new projectors being installed by the audio/video contractor.
- B. It is anticipated that the District's existing infrastructure will support the addition of these limited number of category 6 data drops. If additional switches, patch panels, wire management or other hardware are required due to field conditions, unit pricing will be utilized.

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 in the elementary buildings. Provide, install, test and tag data drops 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. Testing
 - g. Documentation
 - h. 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. Reuse and integrate existing category 6 patch panels.
 - b. Reuse and integrate existing 2u wire management guides.
 - c. Reuse and integrate existing Ethernet data switches.
 - d. Provide new Category 6 unshielded twisted pair cabling.
 - e. Providing new category 6 patch cables.
 - f. Tone, test, label and certify all new data drops at each end of the run.
 - g. Providing new data outlets.

B. Products:

1. Horizontal Cable:
 - a. Data Cable Indoor: Blue, plenum rated, four (4) pair, 24 AWG, UTP, rated Category 6. Functionally equivalent to Berk-Tek Lanmark 1000 or Mohawk AdvanceNet.
 - b. Approved Manufacturers:
 - 1) Uniprise
 - 2) Berk-Tek
 - 3) Hubbell
 - 4) Belden/CDT
 - 5) Mohawk
 - 6) General
 - 7) Panduit
 - 8) Engineer approved equal
2. Copper Patch Cables:
 - a. Category 6 compliant per EIA/TIA 568-B.
 - b. Compliant per EIA/TIA 568-B and 606 for cable management and administration.
 - c. Patch cables shall be color coded as follows:
 - 1) Telecommunications Closet Patch Cables:
 - a) Servers Green
 - b) Administration VLAN Red
 - c) Instructional VLAN Yellow
 - d) Wireless VLAN Purple

- e) Voice Orange
- f) Cross-over White

2) Station Patch Cables:

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

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

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

3. 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. 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.
- c. Provide surface mounted boxes for RJ-45 jacks as required.
- d. Install data cabling into modular furniture and provide surface mounted boxes for RJ-45 jacks as required.
- e. Approved manufacturers:

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

4. Cable Termination Equipment:

- a. Horizontal Cable: Horizontal data cables will be terminated in the telecommunications closet on rack mounted, 48-port patch panels with 110 style termination block, rated Category 6.
 - 1) Patch panels will have a rear mounted strain relief bar to organize cables and maintain Category 6 bend radius.

- 2) 2U Panduit horizontal wire manager shall be located above and below every 48-port patch panel. All horizontal wire managers shall be capable of front and rear cable management. All horizontal wire managers shall have front and rear removable covers.
5. Ethernet Switches:
- a. The District's existing wired LAN/WAN is a star configuration with all buildings connected back to the Troy Services Building with a minimum of 1Gb on the fiber backbone.
 - b. 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 and Cisco 2960 switches.
 - e. The DCS shall be installed utilizing the District's existing switches. If additional switches are required, unit pricing will be utilized. The switch will be programmed by District personnel and labeled, inventoried and installed by the DCS contractor.

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 wenchens.
- 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 agrees to complete the project as follows:

<u>Task</u>	
Technology Installation	July 1, 2008 to August 15, 2008

3.3 INSTALLATION – COPPER CABLING

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

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

3.4 LABELING

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

3.5 CATEGORY 6 (DATA) UTP CABLE TESTING.

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

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

3.6 PROJECT RECORD DOCUMENTS

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

2. Cable and outlet identification, locations, performance and test results will be entered into Excel or approved PC based spreadsheet. The Contractor spreadsheet template and format will be approved by the Owner.
 3. Final record drawings shall be submitted as one (1) ANSI C color laminated drawing, two (2) sets of scaled 20# bond drawings and two (2) CD-ROM in PDF format. Drawings shall be professionally done. Hand drawings and notations will not be accepted.
- C. Cable Record Book
1. The Contractor shall prepare and deliver complete and accurate cable records entered into Excel or approved PC based spreadsheet. Minimum information to be included for each cable in the Cable Record Book is:
 - a. Location (room number)
 - b. Jack Number
 - c. Serving Closet
 - d. Patch Panel Number
 - e. Patch Panel Port
 - f. Cable Type and Use (Cat 6, voice)
- D. Refer to specifications section 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



Integrated Design Solutions

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

www.ids-troy.com

PRE-BID MEETING NOTES NO. 01

Date: May 14, 2008

Present: See Attached

Project Name: Troy School District
School Technology Systems
Projectors and Document Cameras II
Troy, Michigan
TSD Bid Package No. 9496

IDS Project No.: 03234-1000 BP26

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, May 22, 2008, at the Troy School District Purchasing Department located at 1140 Rankin, Troy, Michigan.
- 1.3 Post bid interviews will be held on May 28, 2008.
- 1.4 Bidders need to submit one (1) original and four (4) copies of the bid and retain a copy for themselves. Clearly label each copy submitted as either "original" or "copy".
- 1.5 Bid award is planned for the June 17, 2008, Board of Education meeting.
- 1.6 All questions must be submitted by 12:00 pm on Thursday, May 15, 2008. Questions submitted after this date will not be answered.
- 1.7 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, May 16, 2008.
- 1.8 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.

- 1.9 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.
- 1.10 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.
- 1.11 Pre-bid site visits will occur at 1:00 pm on Friday, May 16, 2008. Interested bidders will meet at the Niles Continuing Education Center and then proceed to Wass and Hill Elementary Schools.
- 1.12 This is a prevailing wage rate project. Copies of the prevailing wage rate schedule for this project are included in the Bid Specifications.
- 1.13 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.
- 1.14 Refer to Bid Specification Section 16015, Article 1.8 for specific Bid Proposal submission requirements.
- 1.15 At the time of publication, the construction schedule requires installation to occur from July 1, 2008 – August 15, 2008. The successful bidder shall be flexible with their schedule. Installation shall be sequenced so that installation of the projectors shall occur after the installation of new computers being provided under a separate contract. The successful bidder shall work closely with the electrical contractor to coordinate the location of the projectors and projector electrical outlets.
- 1.16 An Addendum will be forthcoming. The following items will be addressed in the Addendum:
 - A. Section 00410 – Bid Form, Mandatory Alternate No. 1 and Mandatory Alternate No. 2 are duplicates. Mandatory Alternate No. 2 will be deleted.
- 1.17 Project Overview (refer to project manual for exact requirements):
 - A. Projectors
 1. Each projector installation shall consist of a ceiling mounted projector, a manually operated projection screen, an active audio/video faceplate, a video scaler, an audio amplifier, a pair of surface mounted speakers and all associated cabling, wire loom and other miscellaneous hardware required for a neat, professional installation.

2. The successful bidder will be responsible for configuration changes to the computer's display properties in order to project the computer image simultaneously to the local display and the projector.
3. The successful bidder shall demo and deliver existing projection screens to the Owner as indicated in the bid documents.

B. Document Cameras

1. Each document camera installation shall consist of a cart mounted document camera, a manual 4 x 1 S-Video switch and all associated cabling, wire loom and other miscellaneous hardware required for a neat, professional installation.
2. The successful bidder shall demo and deliver existing document cameras to the Owner as indicated in the bid documents.

C. Data Drops

1. Provide, install, test and tag data drops as indicated in the bidding documents.
2. Provide patch cables at each end of the data link as defined in the bidding documents.
3. Utilize existing cable tray and raceways where possible. The successful bidder shall provide and utilize "J" rings where cable tray and raceways do not exist.
4. Provide and install PoE switches as indicated in the specifications.
5. Provide closeout documentation as described in the Bid Specifications.

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



Integrated Design Solutions

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

www.ids-troy.com

REQUEST FOR INFORMATION NO. 1

Project Name: Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496

IDS Project No.: 03234-1000 BP26

Date: May 15, 2008

The Contractor requests that IDS, LLC and/or W&H supply to them the following information/ clarification relating to the above project

- Q1. In classrooms with the under the desk interfaces – how is the wiring to be run from the desk interface to the projector? i.e. across the floor to the wall – into the wall via a grommet plate, up the wall and over to the projector?
- Q2. I am told there are several data drops to be installed and some requirements for that work but I am unable to find any reference to that work in the current bid document. Am I missing it somewhere or will there be an addendum issued detailing the specifics of that work so that we can first make sure we understand what is being asked for and second make sure we have all costs covered?
- Q3. The drawings call for "VGA breakout" cables and "16 awg." cables **between the interface and the projector**. Can we use plenum rated RGBHV cable along with the appropriate breakout cable and in the case of the 16awg – this is line level audio / 2 channel – should we be using something like a 20 awg shielded / 2 pair wire in lieu of the 16awg wire called for? Or perhaps a pre-made VGA with audio? I think there will be a cost savings going with RGBHV and the 20awg /2pair.
- Q4. Have the specifics of attachment to the pipe been decided for the Calypso amplifier?

Pat Stammers
Name

City Animation
Company

May 15, 2008
Date

IDS Response:

- A1. Cabling shall be run from the under the desk interface (Type "G"), through the existing .cable management tray located on the underside of the student desks to a grommet plate (Type "C") up existing raceway to the ceiling space and routed to the projector.

- A2. Refer to specifications section 16790 and the drawings. The 3.x series of drawings show outlet locations and types. The key plans show the location of the telecommunication closets. T5.2 shows the quantity of data drops, the originating telecommunication closet and the terminating room location. T7.1 defines the faceplate types as located on the 3.x series. Type "F" and "H" define new data drops, type "I" defines a reconfigured faceplate utilizing existing data drops.
- A3. It was intended that plenum rated RGBHV cables with the appropriate breakout cable be utilized. The FSR active faceplates have BNC connectors on the backside of the plate for connection to the projector. 20 awg shielded/2 pair wire can be utilized for audio connection from the faceplate to the projector.
- A4. Mounting of the Calypso amplifier was assumed to be a generic miscellaneous item and is unspecified. The bidders are to include the necessary components to complete the installation based upon their field experience.

Scott Smith
Name

Integrated Design Solutions
Company

May 15, 2008
Date

cc: File



Integrated Design Solutions

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

www.ids-troy.com

REQUEST FOR INFORMATION NO. 2

Project Name: Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496

IDS Project No.: 03234-1000 BP26

Date: May 15, 2008

The Contractor requests that IDS, LLC and/or W&H supply to them the following information/ clarification relating to the above project

- Q1. The Elmo P-30 Document Camera has been discontinued. Elmo Recommends the P10 as the closest equivalent. The Primary difference is that the P10 has less of a Zoom Ratio. Will you accept the P10 as a replacement for the P-30?
- Q2. Will you accept the Qomo QD700 Document Camera as an alternative to the discontinued Elmo P-30?
- Q3. Will you accept the Soundtube SA 201 amplifier as an alternative to the Calypso CA-500 ?

Kevin Gibson	City Animation	May 15, 2008
Name	Company	Date

IDS Response:

- A1. Document cameras and related accessories will be removed from the base bid requirements. Elmo P10 document cameras and Elmo P30S document cameras along with related accessories will be added to the bid form as mandatory alternates. This will be addressed in a forthcoming addendum.
- A2. Refer to answer A1 for document camera requirements. You may offer an alternate manufacturer as a voluntary alternate.
- A3. Base bid shall be the Calypso CA-500. You may offer an alternate manufacturer as a voluntary alternate.

Scott Smith	Integrated Design Solutions	May 15, 2008
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Contractor Request for Information
IDS Project No. 03234-1000 BP26
May 15, 2008
Page 2

Name

Company

Date

cc: File

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Integrated Design Solutions

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

www.ids-troy.com

ADDENDUM NO. 1

Issue Date: May 15, 2008

Project Name: Troy School District
School Technology Systems
Projectors & Document Cameras II
Troy, Michigan
TSD Bid Package No. 9496

IDS Project No.: 03234-1000 BP26

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: 00410 and 11130

Drawings: None

Sketches: None

PROJECT MANUAL DOCUMENTS DELETED OR REVISED BUT NOT ISSUED

None

DRAWINGS DELETED OR REVISED BUT NOT ISSUED

Item No. 1 T3.3DC

A. Revised title to read as follows:

“Costello Elementary School – Document Cameras Alternate”

cc: File

Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
Troy, Michigan

IDS Project No. 03234-1000 BP26

SECTION 00410 - BID FORM

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

PROJECT: Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
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 Projectors and Document Cameras II, TSD Bid No. 9496 Project in accordance with the Drawings and Specifications prepared by Integrated Design Solutions, LLC dated May 7, 2008, and agrees to accept payment as herein provided.

BASE BID

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

_____ Dollars (\$_____).

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

BASE BID BREAKDOWN

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

Material cost only of projection screens, projectors, projector mounts, down pipes, audio amplifiers, speakers, faceplates, cabling, video scalars and other miscellaneous appurtenances. \$ _____

Installation cost (labor only) of projection screens, projectors, projector mounts, down pipes, audio amplifiers, speakers, faceplates, cabling, video scalars and other miscellaneous appurtenances. \$ _____

Material cost only of document cameras, carts, 4 x 1 S-Video switchers, cables and other miscellaneous appurtenances. \$ _____

Installation cost (labor only) of document cameras, carts, 4 x 1 S-Video switchers, cables and other miscellaneous appurtenances. \$ _____

Bid Bond, Performance Bond and Labor and Material Payment Bond Costs \$ _____

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.

Mandatory Alternate No. 1: Provide, install and configure Epson Powerlite 83+ multimedia projectors with a three (3) year warranty in lieu of the Mitsubishi XD490U multimedia projectors included in Base Bid.

Add/Deduct _____

_____ Dollars (\$ _____).

~~Mandatory Alternate No. 2: Provide, install and configure Epson Powerlite 83+ multimedia projectors with a three (3) year warranty in lieu of the Mitsubishi XD490U multimedia projectors included in Base Bid.~~

~~Add/Deduct _____~~

~~_____ Dollars (\$ _____).~~

Mandatory Alternate No. 2: Provide, install and configure twenty-four (24) document cameras, twenty-four (24) document camera carts and twenty-four (24) S-video switches as follows. In addition, provide two (2) spare document cameras and twenty-four (24) spare document camera lamps. Refer to Drawing T3.3DC for installation locations.

1. Document Cameras and Accessories

A. Provide document cameras with the following minimum specifications:

1. 1/3" progressive scan CCD
2. 850,000 pixels
3. Powered zoom (12x optical, 4x digital)
4. Auto and manual focus (powered)
5. Auto and manual white balance
6. Auto and manual color adjustment
7. Auto and manual brightness adjustment
8. Color/B&W selection
9. Negative/positive selection
10. Image rotation
11. Upper adjustable lighting arm
12. Rotatable and adjustable camera head
13. Maximum 15" x 19" base
14. Inputs: (1) RGB
15. Outputs: (1) RGB, (1) S-Video, (1) composite, (1) DVI
16. PC interface: RS-232C, USB
17. Warranty: Three (3) year
18. AC power cord
19. AV cables
20. IR remote control with batteries
21. Manuals and documentation
22. Document camera shall be an ELMO P10

B. S-Video Switch

1. For each document camera location, provide the following:

a. Provide 4 x 1 manual S-Video switches and cables with the following minimum specifications:

1. 4 S-Video inputs, 1 S-Video output
2. Bandwidth: 20Hz~10MHz
3. Isolation: 30dB minimum
4. Warranty: One (1) year manufacturer
5. Manufacturer: Terk
6. Model: VS-4

b. The contractor shall provide and install Brother P-Touch or equivalent labels on all 4 x 1 S-Video switch inputs as follows:

1. Input One (1): PC
2. Input Two (2): ELMO
3. Input Three (3): AUX1
4. Input Four (4): AUX2

C. S-Video patch cables:

1. One (1) 10' S-Video patch cable
2. One (1) 3' S-Video patch cable

D. Document Camera Carts

1. Provide and assemble adjustable AV carts with the following minimum specifications:
 - a. Color: Black
 - b. Electrical assembly with 3 grounded outlets, 20 ft. grounded extension cord. UL listed.
 - c. 26" to 42" height adjustable. Three 18" x 24" shelves. 4" swivel casters, 2 lockable.
 - d. 1 rubber mat on the top shelf.
 - e. Assemble and adjust height per Owner's specification.
 - f. Document camera cart shall be a Brettford Basics Model A26242EA or a HWilson model W42AE or engineer approved equivalent.

2. Installation-Typical Document Camera Located in Classrooms

- A. Unpack and assemble new audiovisual cart.
- B. Install new document camera on new audiovisual cart.
- C. Cable and dress the new document camera on the new audiovisual cart per the Owners specifications. Include Velcro to secure the document camera to the audiovisual cart.
- D. Wall mount the 4 x 1 manual S-Video switcher using contractor provided Velcro fasteners.
- E. Disconnect existing S-Video cable from the CCP to the desktop computer.
- F. Reconnect existing S-Video cable from the desktop computer to the S-Video switcher input 1.
- G. Connect the document camera to the S-Video switcher input 2 using a 10' contractor provided S-Video cable.
- H. Connect the S-Video switcher output to the CCP using a 3' contractor provided S-Video cable.
- I. Dress and secure S-Video cables to the CCP wall using a contractor provided adjustable and releasable strain relief clamp.
- J. Calibrate, configure, and test the new document camera with the Owners existing source devices.
- K. Refer to technology drawings for interconnection details.

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

Mandatory Alternate No. 3: Provide, install and configure twenty-four (24) document cameras, twenty-four (24) document camera carts and twenty-four (24) S-video switches as follows. In addition, provide two (2) spare document cameras and twenty-four (24) spare document camera lamps. Refer to drawing T3.3DC for installation locations.

1. Document Cameras and Accessories

A. Provide document cameras with the following minimum specifications:

1. 1/3" progressive scan CCD
2. 1,350,000 pixels
3. 16 x 9 aspect ratio capable
4. HD 720P output capable
5. Powered zoom (16x optical, 4x digital)
6. Auto and manual focus (powered)
7. Auto and manual white balance
8. Auto and manual color adjustment
9. Auto and manual brightness adjustment
10. Color/B&W selection
11. Negative/positive selection
12. Image rotation
13. Upper adjustable lighting arm
14. Rotatable and adjustable camera head
15. Maximum 15" x 19" base
16. Inputs: (1) RGB
17. Outputs: (1) RGB, (1) S-Video, (1) composite, (1) DVI
18. PC interface: RS-232C, USB
19. Warranty: Three (3) year
20. AC power cord
21. AV cables
22. IR remote control with batteries
23. Manuals and documentation
24. Document camera shall be an ELMO P30S

B. S-Video Switch

1. For each document camera location, provide the following:

a. Provide 4 x 1 manual S-Video switches and cables with the following minimum specifications:

1. 4 S-Video inputs, 1 S-Video output
2. Bandwidth: 20Hz~10MHz
3. Isolation: 30dB minimum
4. Warranty: One (1) year manufacturer
5. Manufacturer: Terk
6. Model: VS-4

b. The contractor shall provide and install Brother P-Touch or equivalent labels on all 4 x 1 S-Video switch inputs as follows:

1. Input One (1): PC
2. Input Two (2): ELMO
3. Input Three (3): AUX1

Troy School District
School Technology Systems
Projectors and Document Cameras II
TSD Bid No. 9496
Troy, Michigan

IDS Project No. 03234-1000 BP26

4. Input Four (4): AUX2

C. S-Video patch cables:

1. One (1) 10' S-Video patch cable
2. One (1) 3' S-Video patch cable

D. Document Camera Carts

1. Provide and assemble adjustable AV carts with the following minimum specifications:
 - a. Color: Black
 - b. Electrical assembly with 3 grounded outlets, 20 ft. grounded extension cord. UL listed.
 - c. 26" to 42" height adjustable. Three 18" x 24" shelves. 4" swivel casters, 2 lockable.
 - d. 1 rubber mat on the top shelf.
 - e. Assemble and adjust height per Owner's specification.
 - f. Document camera cart shall be a Brettford Basics Model A26242EA or a HWilson model W42AE or engineer approved equivalent.

2. Installation-Typical Document Camera Located in Classrooms

- A. Unpack and assemble new audiovisual cart.
- B. Install new document camera on new audiovisual cart.
- C. Cable and dress the new document camera on the new audiovisual cart per the Owners specifications. Include Velcro to secure the document camera to the audiovisual cart.
- D. Wall mount the 4 x 1 manual S-Video switcher using contractor provided Velcro fasteners.
- E. Disconnect existing S-Video cable from the CCP to the desktop computer.
- F. Reconnect existing S-Video cable from the desktop computer to the S-Video switcher input 1.
- G. Connect the document camera to the S-Video switcher input 2 using a 10' contractor provided S-Video cable.
- H. Connect the S-Video switcher output to the CCP using a 3' contractor provided S-Video cable.
- I. Dress and secure S-Video cables to the CCP wall using a contractor provided adjustable and releasable strain relief clamp.
- J. Calibrate, configure, and test the new document camera with the Owners existing source devices.
- K. Refer to technology drawings for interconnection details.

Add/Deduct _____

_____ Dollars (\$_____).

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

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 No. 1:	Cost to provide one (1) digital video projector (no installation).	\$ _____	\$ _____
UP No. 2:	Cost to provide and install one (1) digital video projector including Unistrut, mounting bracket, down pipe, faceplates, outlets, cabling, patch cables, labeling and testing (complete).	\$ _____	\$ _____
UP No. 3:	Cost to provide one (1) video scaler.	\$ _____	\$ _____
UP No. 4:	Cost to provide and install one (1) projection screen including screen and mounting hardware.	\$ _____	\$ _____
UP No. 5:	Cost to provide and install one (1) local source sound system including two (2) surface mount speakers, speaker mounting hardware, one (1) audio amplifier, cabling and other required miscellaneous appurtenances.	\$ _____	\$ _____
UP No. 6:	Cost to provide one (1) document camera (no installation).	\$ _____	\$ _____
UP No. 7:	Cost to provide one (1) document camera cart.	\$ _____	\$ _____
UP No. 8:	Cost to provide and install one (1) document camera, one (1) document camera cart including all cabling, patch cables, labeling and testing (complete).	\$ _____	\$ _____
UP No. 9:	Cost to provide one (1) 4 x 1 manual S-Video switcher box.	\$ _____	\$ _____

	ADD	DEDUCT
UP No. 10: Cost to provide one (1) digital video projector replacement lamp.	\$ _____	\$ _____
UP No. 11: Cost to provide one (1) document camera replacement lamp.	\$ _____	\$ _____
UP No. 12: Cost to provide one (1) DVI-I to DVI-D and VGA adapter cable.	\$ _____	\$ _____

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:

<u>Task</u> Technology Installation	July 1, 2008 to August 15, 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 than the recipient of such bid, and will not be communicated to any such person prior to the official opening of said bid. The undersigned fully understands that no premiums, rebates, or gratuities are permitted either with, prior to or after signing the Contract. This certification may be treated as if it were a sworn statement made under oath, and is made subject to the provisions of 18 U. S. C., 1001, relating to the making of false statements.

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 four (4) 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 _____, 2008, by _____.

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

END OF BID FORM

SECTION 11130 - PROJECTORS AND DOCUMENT CAMERAS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes digital video projectors, document cameras and installation including, but not limited, to the following:

1. Provide and install digital video projectors as follows:
 - a. Provide and install new ceiling mounts and digital video projectors including escutcheon rings, cables, remote control units, faceplates and other accessories.
 - b. Provide and install video scalars.
 - c. Provide and install DVI video splitters.
 - d. Provide spare digital video projectors and lamps.

~~2. Provide and install document cameras as follows:~~

- ~~a. Remove existing document cameras and turn over to the Owner.~~
- ~~b. Provide and install new document cameras, carts, cables, and accessories.~~
- ~~c. Provide and install wall mounted 4 x 1 manual S-Video switches and adjustable releasable clamps for cable management and strain relief.~~
- ~~d. Provide spare document cameras, lamps, and cables.~~

- ~~3-2.~~ Unpack and assemble all equipment and carts.
- ~~4-3.~~ Deliver existing equipment to the Owner.
- ~~5-4.~~ Provide all necessary cabling and components for a complete and professional installation.
- ~~6-5.~~ Calibrate, configure, and test all equipment.
- ~~7-6.~~ Remove all packing material from school property.
- ~~8-7.~~ Provide documentation for all product types.
- ~~9-8.~~ Provide on-site training to district personnel on the general use and maintenance of the provided equipment.

- B. Related sections that apply to this work:

1. Division 16 – Section 16015 “Technology General Requirements”.

1.3 SYSTEM DESCRIPTION

- A. Provide the services necessary to remove existing and to furnish, install, train, and to provide maintenance support for digital video projectors and document cameras conforming to acceptable industry standards. All work shall be in accordance with the true intent of these Specifications, and as required to leave the digital video projectors and document cameras in complete and satisfactory operating condition.

1. The Owner reserves the right to reject any or all alternate equipment bids and to select the bid that is considered to serve "THE BEST INTEREST OF THE OWNER."

1.4 SUBMITTALS

- A. Upon project close-out, provide the following:
1. Two (2) sets of manufacturer service manuals for the projectors and document cameras.
 2. A copy of the manufacturer's certification for the ceiling mount installer.

1.5 PROJECT/SITE CONDITIONS

- A. Verify conditions at the job sites prior to installation within the Troy School District.

1.6 WARRANTY

- A. Warranty period shall commence after all the systems have been placed in working operation and accepted by the Owner by formal written acceptance.
- B. Unless otherwise noted, all systems and components shall be guaranteed free of defects in materials and workmanship for a period of three (3) years or manufacturer warranty, which ever is longer, from the date of acceptance. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Engineer/Technology Designer and the Owner.
- C. All digital video projector lamps shall be guaranteed free of defects in materials and workmanship for a period of one (1) year or manufacturer warranty, which ever is longer, from the date of acceptance. The date of acceptance shall be defined as the date the Certificate of Substantial Completion is signed by the Engineer/Technology Designer and the Owner

1.7 TRAINING

- A. Training:
1. The video equipment supplier shall provide a minimum of eight (8) hours of instruction and training on the operation and maintenance of the video equipment to Troy School District technical maintenance staff.
 2. All training will be provided in two (2) hour blocks maximum and coordinated with District personnel at the Services Building.
- B. Support:
1. The video equipment supplier shall provide twenty-four (24) hours of support to be used at the District's discretion within the first year of installation after substantial completion.

1.8 SPARE PARTS

- A. Provide the following spare parts in addition to the quantities specified elsewhere:
1. Two (2) digital video projectors
 - ~~2. Two (2) document cameras~~
 - ~~3.2. Twenty-two (22) digital projector lamps~~
 - ~~4. Twenty-four (24) spare document camera lamps~~
 - ~~5.3. Five (5) video scalars~~
 - ~~6.4. Five (5) DVI-I to DVI-D + VGA splitter cables~~

PART 2 - PRODUCT

2.1 DIGITAL VIDEO PROJECTORS

A. Provide digital video projectors with the following minimum specifications:

1. Digital video projector
 - a. DLP
 - b. XGA (1024 x 768) native resolution
 - c. 3000 ANSI lumens
 - d. 2500:1 contrast ration
 - e. Vertical and horizontal digital keystone correction
 - f. Inputs: (2) RGB, (1) DVI, (1) S-Video, (1) Composite, (2) stereo mini jack
 - g. Outputs: (1) RGB, (1) stereo mini jack
 - h. Minimum 2 watt amplifier with internal speaker
 - i. Warranty: (3) year projector, one (1) year lamp
 - j. AC power cord
 - k. AV cables
 - l. IR remote control with batteries
 - m. Manuals and documentation
 - n. Digital video projector shall be a Mitsubishi XD490U or Engineer approved equivalent.
2. Projector mount and bracket
 - a. For each ceiling mounted projector, provide the following:
 - 1) Projector mount shall be a Peerless Industries PRS Series projector mount kit Model PRS-242 which includes a projector mount and an adapter plate.
 - 2) Ceiling plate shall be a Peerless Unistrut adapter ACC 550.
 - 3) Contractor shall provide and install Unistrut support members, clamps, threaded pipe, escutcheon rings and other appurtenances necessary for a complete and professional installation.
 - 4) Contractor shall provide and install 1-1/2" NPT black mounting pipes. Contractor shall field verify mounting pipe lengths.

2.2 FRONT-PROJECTION SCREENS

A. Manually Operated Screens, General: Manufacturer's standard spring-roller-operated units, consisting of case, screen, mounting accessories, and other components necessary for a complete installation.

1. Screen Mounting: Top edge securely anchored to a 3-inch diameter, rigid steel roller; bottom edge formed into a pocket holding a tubular metal slat, with ends of slat protected by plastic caps, and with a saddle and pull attached to slat by screws.

- B. Surface-Mounted, Metal Encased, Manually Operated Screens: Units designed and fabricated for surface mounting on wall or ceiling, fabricated from formed steel sheet not less than 0.027 inch thick or aluminum extrusions; with flat back design and baked-enamel finish, wood grain vinyl not acceptable. Provide end caps and universal mounting brackets, finished to match end caps. For ceiling mounted units provide manufacturers T-Bar scissors clip.
1. Products:
 - a. Da-Lite Screen Co., Inc.; Model C.
 - b. Draper Inc.; Luma 2.
- C. Screen Material and Viewing Surface:
1. Matte-White Viewing Surface: Peak gain of 0.9 to 1.0, and gain of not less than 0.8 at an angle of 50 degrees from the axis of the screen surface.
 - a. Products:
 - 1) Da-Lite Screen Co., Inc.; Da-Mat.
 - 2) Draper Inc. Fiberglass Matte White.
 2. Material: Vinyl-coated glass-fiber fabric.
 3. Mildew Resistance: Rating of 0 or 1 when tested according to ASTM G 21.
 4. Flame Resistance: Passes NFPA 701.
 5. Flame-Spread Index: Not greater than 75 when tested according to ASTM E 84.
 6. Seamless Construction: Provide screens, in sizes indicated, without seams.
 7. Edge Treatment: Without black masking borders.
 8. Size of Viewing Surface:
 - a. 60 inches high by 80 inches wide, 100 inches diagonal.

2.3 VIDEO SCALER

- A. Provide video scalers with the following minimum specifications:
1. Video Scaler:
 - a. Up-conversion from video to VGA, SVGA or XGA
 - b. Comb filter decoding of the video signal
 - c. Selectable outputs of 640 x 480, 800 x 600 or 1024 x 768
 - d. Automatic input standards selection for NTSC, PAL, PAL M, PAL N or SECAM
 - e. Composite video input via an RCA connector with stereo audio via 2 RCA connectors
 - f. S-Video input via a 4-pin mini-DIN connector with stereo audio via 2 RCA connectors
 - g. Computer loop-thru input via an HD15 female connector with stereo audio via mini phone connector
 - h. VGA output via HD15 female connector with stereo audio via mini phone connector
 - i. On-screen display for ease of setup
 - j. Adjustable control of brightness, contrast, color and tint
 - k. 115 VAC to +12 VDC @ 500mA power adapter included

- l. Size: 1.8" high x 9.3" wide x 5.1" deep
 - m. Weight: 14 ounces (0.4kg)
 - n. One year limited warranty
 - o. Video scaler shall be a TV One, AV Toolbox AVT-3340 or engineer approved equivalent.
2. Video Scaler Patch Cables:
 - a. For each video scaler provide the following:
 - 1) One (1) 6' RCA video patch cable.
 - 2) One (1) 6' S-Video patch cable.
 - 3) One (1) 6' VGA patch cable.
 - 4) One (1) 6' 3.5mm audio patch cable.

2.4 AUDIO/VIDEO INTERFACES

- A. Provide the following Decora style active audio/video interface as indicated on the drawings.
 1. Active computer video and stereo audio interface.
 2. Single-gang Decora style wall plate.
 3. Video output via five (5) BNC female cable array.
 4. Active balanced stereo output via 5-position screw-down terminal block.
 5. Video bandwidth 700MHz @ -3.0dB, audio bandwidth 20Hz to 20kHz ($\pm 0.052B$).
 6. User adjustable gain via DIP switch settings.
 7. 8-14v DC remotely powered up to 150 feet away.
 8. Decora style audio/video interface shall be a FSR CI-5BWPA or engineer-approved equivalent.
- B. Provide the following external under table mount active audio/video interface as indicated on the drawings.
 1. Active computer video and stereo audio interface.
 2. Under table style metal enclosure.
 3. Video output via five (5) female BNC connectors.
 4. Local video loop back.
 5. Active balanced stereo output via 5-position screw-down terminal block.
 6. Video bandwidth 400MHz @ -3.0dB, audio bandwidth 20Hz to 20kHz ($\pm 0.05dB$).
 7. User adjustable gain via jumper.
 8. 8-14v DC remotely powered up to 150 feet.
 9. Under table mount active audio/video interface shall be a FSR CI-5UT of engineer approved equivalent.

2.5 LOCAL SOUND SYSTEM

- A. For each ceiling mounted projector provide the following:
 1. Audio Amplifier:
 - a. One (1) balanced or unbalanced stereo input.
 - b. One (1) stereo or two (2) mono outputs.
 - c. 32 watts (16 watts/channel @ 4 ohms, 8 watts/channel @ 8 ohms).
 - d. S/N: >84dB @ 20Hz to 20kHz at maximum output.

- e. Control: RS-232, IR.
 - f. Test tones, auto ducking, PA detect circuit, on-board mixer.
 - g. Thermal and short circuit protection.
 - h. Four (4) settable gain levels.
 - i. Input Power: 12VDC – 15VDC, up to 3.5A. Output Power: 12VDC – 15VDC, up to 0.5A.
 - j. Audio amplifier shall be a Calypso Control Systems CA-500 amplifier or engineer approved equivalent.
2. Surface Mount Loudspeakers:
- a. Freq. Range (-10 dB): 85 Hz - 22 kHz
 - b. Power Capacity: 50 Watts Continuous Program Power
 - c. Nominal Sensitivity: 86 dB SPL @ 1 m (3.3 ft)
 - d. Nominal Coverage Angle: 130° conical coverage
 - e. Directivity Factor (Q): 4.8
 - f. Directivity Index (DI): 6.8
 - g. Rated Maximum SPL: 86 dB @ 1 m (3.3 ft)
 - h. Nominal Impedance: 8 ohms
 - i. Low-Frequency: 3-1/2" polypropylene-coated woofer
 - j. High-Frequency: 1/2" titanium coated hand loaded tweeter
 - k. Enclosure: High impact polystyrene
 - l. Dimensions (H x W X D): 7.6" x 5.5" x 4.4".
 - m. Net Weight: 4 lbs.
 - n. The speakers shall be rotatable over a minimum $\pm 35^\circ$ in all directions via a ball type mounting system.
 - o. Loud speaker shall be a JBL Professional Control Contractor's Series 23 or engineer approved equivalent.
 - p. The speakers shall be equipped with all the necessary mounting hardware and grilles.

2.6 VIDEO SPLITTER CABLE

- A. For each projector location, provide the following:
1. Provide DVI-I male to DVI-D female + VGA female splitter cables.

~~2.7 DOCUMENT CAMERAS~~

- ~~A. Provide document cameras with the following minimum specifications:~~

- ~~1. 1/3" progressive scan CCD~~
- ~~2. 850,000 pixels~~
- ~~3. Powered zoom (15x optical, 4x digital)~~
- ~~4. Auto and manual focus (powered)~~
- ~~5. Auto and manual white balance~~
- ~~6. Auto and manual color adjustment~~
- ~~7. Auto and manual brightness adjustment~~
- ~~8. Color/B&W selection~~
- ~~9. Negative/positive selection~~
- ~~10. Image rotation~~
- ~~11. Upper adjustable lighting arm~~
- ~~12. Rotatable and adjustable camera head~~
- ~~13. Maximum 15" x 19" base~~
- ~~14. Inputs: (1) RGB~~

- ~~15. Outputs: (1) RGB, (1) S-Video, (1) composite, (1) DVI~~
- ~~16. PC interface: RS-232C, USB~~
- ~~17. Warranty: Three (3) year~~
- ~~18. AC power cord~~
- ~~19. AV cables~~
- ~~20. IR remote control with batteries~~
- ~~21. Manuals and documentation~~
- ~~22. Document camera shall be an ELMO P30 or Engineer approved equivalent~~

~~2.8 S-VIDEO SWITCH~~

~~A. For each document camera location, provide the following:~~

- ~~1. Provide 4 x 1 manual S-Video switches and cables with the following minimum specifications:~~
 - ~~a. 4 S-Video inputs, 1 S-Video output~~
 - ~~b. Bandwidth: 20Hz-10MHz~~
 - ~~c. Isolation: 30dB minimum~~
 - ~~d. Warranty: One (1) year manufacturer~~
 - ~~e. Manufacturer: Terk~~
 - ~~f. Model: VS-4~~
- ~~2. S-Video patch cables:~~
 - ~~a. One (1) 10' S-Video patch cable~~
 - ~~b. One (1) 3' S-Video patch cable~~

~~2.92.7 AUDIO/VIDEO 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 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 shall be 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.

B. Audio/Video Patch Cables:

1. For each projector installation provide the following:
 - a. One (1) 25' VGA patch cable.
 - b. One (1) 25' 3.5mm audio patch cable.

2.102.8 FURNITURE

A. ~~Document Camera~~/Portable Projector Carts:

1. Provide and assemble adjustable AV carts with the following minimum specifications:
 - a. Color: Black
 - b. Electrical assembly with 3 grounded outlets, 20 ft. grounded extension cord. UL listed.
 - c. 26" to 42" height adjustable. Three 18" x 24" shelves. 4" swivel casters, 2 lockable.
 - d. 1 rubber mat on the top shelf.
 - e. Assemble and adjust height per Owner's specification.
 - f. Document camera cart shall be a Bretford Basics Model A26242EA or a HWilson model W42AE or engineer approved equivalent.

2.112.9 LABELING

- A. The contractor shall install District supplied asset tags on all digital video projectors and document camera equipment provided under this bid. The contractor shall populate a District supplied Microsoft Excel database with the following information:
1. District asset tag number
 2. Building/location
 3. Digital video projector/document camera identification number
 4. Manufacturer serial number
 5. Install Date

~~B. The contractor shall provide and install Brother P-Touch or equivalent labels on all 4 x 1 S-Video switch inputs as follows:~~

- ~~1. Input One (1): Computer.~~
- ~~2. Input Two (2): Document Camera~~

- ~~B.~~ The contractor shall stencil identification information on all projector carts and document camera carts. The Owner will provide stencils, ink and rollers for the contractors use.

- ~~D.C.~~ The contractor shall provide and install mechanically produced labels on the faceplates.

2.122.10 VIDEO EQUIPMENT

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

PART 3 - EXECUTION

3.1 INSTALLATION-GENERAL

- A. Remove existing document cameras and deliver to Owner.
- B. Provide and install digital video projector ceiling mounting brackets.
- C. Provide and install digital video projectors and accessories.
- D. Provide, assemble and install digital video projector AV carts.
- E. Provide, assemble and install document camera AV carts.
- F. Provide and install document cameras and accessories.
- G. Apply Owner provided asset tag to all projectors and document cameras.
- H. Record the asset tag number, building/location, identification number, manufacturer serial number and installation date in an Owner provided Microsoft Excel database.
- I. Remove all packing material from school properties. District waste receptacles shall not be used.
- J. Calibrate, configure, and test all equipment.
- K. Any system or component that fails during installation shall be replaced upon discovery.

3.2 INSTALLATION-TYPICAL CEILING MOUNT PROJECTOR

- A. Provide and install Unistrut support members, clamps, threaded pipe and other necessary appurtenances.
- B. Remove all ceiling tile required for the installation of the projector mounting brackets and to route cabling. Cut and cope tile as required to accommodate installation of mounting brackets. Provide and install stainless steel escutcheon rings.
- C. Reinstall all ceiling tile removed for the installation.
- D. Where ceiling tile is damaged by this contractor, provide new ceiling tile of the same manufacture and style as the damaged tile.

- E. Provide and install Peerless Unistrut adapters.
- F. Provide and install 1-1/2" NPT black mounting pipes.
- G. Provide and install digital video projectors and accessories.
- H. Provide and install Peerless PRS Series mounting kits including projector mounts and adapter plates.
- I. Configure digital video projector lamp to operate in "low mode".
- J. Mount projector to ceiling following the manufacturer's instructions.
- K. Provide and install audio/video cabling into existing conduit and raceway between the A/V faceplate and the projector.
- L. Provide and install faceplates, frames, jacks, inserts and blanks necessary to reconfigure existing faceplates as specified.
- M. Provide and install new faceplates, frames, jacks, inserts and blanks as specified.
- N. Provide and install an audio amplifier at each projector location.
- O. Provide and install surface mount loudspeakers and cabling.
- P. Disconnect existing LCD monitor from the existing computer.
- Q. Provide and install a DVI to DVI + VGA splitter cable.
- R. Reconnect LCD monitor to DVI to DVI + VGA splitter cable using an Owner provided DVI cable.
- S. Connect the VGA output of the DVI to DVI + VGA splitter cable to the contractor provided A/V faceplate using a contractor provided VGA PATCH cable.
- T. Provide and install a 12 volt DC power supply to power the audio amplifier and A/V faceplate. Refer to technology drawings for interconnection details.
- U. Apply Owner provided asset tags to all projectors.
- V. Provide and install labels on all new and reconfigured faceplates.
- W. Provide and install Velcro tie wraps and wire loom to dress out all cabling in a neat and professional manner. Plastic tie wraps are unacceptable.
- X. Record the asset tag number, building/location, identification number, manufacturer serial number and installation date in an Owner provided Microsoft Excel database.
- Y. Remove all packing material from school properties. District waste receptacles shall not be used.
- Z. Calibrate, configure, and test new projector with the Owners existing computer source device.
- AA. Adjust video gain on the A/V faceplate as necessary.

- BB. Adjust audio gain on the audio amplifier as necessary.
- CC. Refer to technology drawings for faceplate configurations, mounting and interconnection details.
- DD. Any system or component that fails during installation shall be replaced upon discovery.

3.3 INSTALLATION-TYPICAL PORTABLE PROJECTOR

- A. Unpack and assemble new audiovisual cart.
- B. Install new projector on new audiovisual cart.
- C. Cable and dress the new projector on the new audiovisual cart per the Owners specifications. Include a Velcro strap to secure the projector to the audiovisual cart.
- D. Calibrate, configure, and test new projector with the Owners existing source devices.

3.4 INSTALLATION – TYPICAL PROJECTION SCREEN

- A. General: Install projection screens at locations indicated to comply with screen manufacturer's written instructions.
- B. Remove existing projection screens and mounting hardware as indicated and deliver to Owner.
- C. Install front-projection screens with screen cases in position and in relation to adjoining construction indicated. Securely anchor to supporting substrate in a manner that produces a smoothly operating screen with vertical edges plumb and viewing surface flat when screen is lowered.
 - 1. Test manually operated units to verify that screen operating components are in optimum functioning condition.

~~3.5 INSTALLATION-TYPICAL DOCUMENT CAMERA LOCATED IN CLASSROOMS~~

- ~~A. Unpack and assemble new audiovisual cart.~~
- ~~B. Install new document camera on new audiovisual cart.~~
- ~~C. Cable and dress the new document camera on the new audiovisual cart per the Owners specifications. Include Velcro to secure the document camera to the audiovisual cart.~~
- ~~D. Wall mount the 4 x 1 manual S-Video switcher using contractor provided Velcro fasteners.~~
- ~~E. Disconnect existing S-Video cable from the CCP to the desktop computer.~~
- ~~F. Reconnect existing S-Video cable from the desktop computer to the S-Video switcher input 1.~~
- ~~G. Connect the document camera to the S-Video switcher input 2 using a 10' contractor provided S-Video cable.~~
- ~~H. Connect the S-Video switcher output to the CCP using a 3' contractor provided S-Video cable.~~

- ~~I. Dress and secure S-Video cables to the CCP wall using a contractor provided adjustable and releasable strain relief clamp.~~
- ~~J. Calibrate, configure, and test the new document camera with the Owners existing source devices.~~
- ~~K. Refer to technology drawings for interconnection details.~~

3-63.5 SCHEDULE

- A. Deliver, install, calibrate, configure and test all projectors, document cameras, carts and accessories between July 1, 2008 and August 15, 2008. Substantial completion is upon Owners acceptance.

3-73.6 INSTALLATION-SITE REQUIREMENTS

Building	Ceiling Mount Projector	Projection Screen	Audio Amplifier	Surface Mount Speaker	Video Scaler	Cart Mount Projector	Portable Projector Cart	Document Camera	Document Camera Cart	S-Video Switch
Barnard Elementary	2	2	2	4	2	---	---	---	---	---
Bemis Elementary	2	2	2	4	2	---	---	---	---	---
Costello Elementary	1	1	1	2	2	1	1	240	240	240
Hamilton Elementary	2	2	2	4	2	---	---	---	---	---
Hill Elementary	1	1	1	2	1	---	---	---	---	---
Leonard Elementary	1	1	1	2	1	---	---	---	---	---
Martell Elementary	1	2	1	2	1	1	1	---	---	---
Morse Elementary	1	1	1	2	1	---	---	---	---	---
Schroeder Elementary	1	1	1	2	1	---	---	---	---	---
Troy Union Elementary	1	1	1	2	1	---	---	---	---	---
Wass Elementary	2	2	2	4	2	---	---	---	---	---
Wattles Elementary	2	2	2	4	2	---	---	---	---	---
Niles Continuing Ed	3	2	3	6	3	---	---	---	---	---
Total Quantity	20	20	20	40	21	2	2	240	240	240

3-83.7 TESTING AND CALIBRATION

- A. Ceiling mount projectors:
 - 1. Adjust for maximum image size on the Owners existing screens.
 - 2. Adjust focus, brightness, contrast, color settings and keystone as necessary for a proper image in an educational environment.
 - 3. Adjust audio to avoid clipping and distortion. Adjust volume to be heard clearly from viewing position.
- B. Portable projectors:
 - 1. Adjust focus, brightness, contrast, and color settings as necessary for a proper image in an educational environment.

~~C. Document cameras:~~

- ~~1. Adjust focus, brightness, contrast, and color settings as necessary for a proper image in an educational environment.~~

END OF SECTION 11130



BID TABULATION FORM

Project Name: Troy School District
 School Technology Systems
 Projectors and Document Cameras II
 TSD Bid Number 9496
 IDS Project No.: 03234-1000 BP26

Date: May 22, 2008

Estimate:

	Troxell Communications	City Animation			
Bid Bond	Yes	Cashier Check			
Addendum	Yes	Yes			
Familiar Disclosure	Yes	Yes			
Base Bid	\$96,303.83	\$108,960.00			

Mandatory Alternates

MA1: Provide Epson Powerlite 83+ projectors in lieu of Mitsubishi XD490U projectors	(\$17,460.00)	(\$15,360.00)			
MA2: Provide ELMO P10 document cameras, carts, S-Video switches & cabling	\$44,050.22	\$46,666.00			
MA3: Provide ELMO P30S document cameras, carts, S-Video switches & cabling	\$58,904.55	\$60,163.00			

Voluntary Alternates

Voluntary Alternate No. 1		(\$704.00) per unit			
Voluntary Alternate No. 2		(\$504.00) per unit			
Voluntary Alternate No. 3		(\$900.00) per unit			