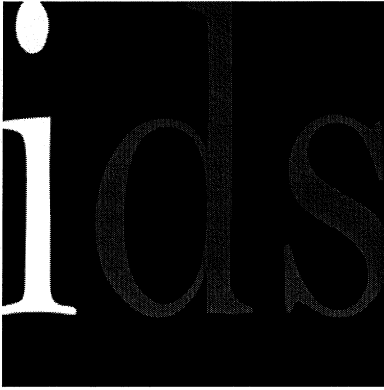

architecture interiors & technology



Integrated Design Solutions

Project Manual

**Troy School District
Troy WAN Renovations
TSD Bid No. 9336**

IDS Project No. 03234-1000 BP 17

August 3, 2006
Bids

Project Manual

**Troy School District
TSD WAN Renovations
TSD Bid No. 9336
Troy, Michigan**

for

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

Integrated Design Solutions LLC

Architecture, Engineering, Interiors & Technology
888 W Big Beaver, Suite 200
Troy, Michigan 48084
248.823.2100
Fax 248.823.2200
www.ids-troy.com

IDS Project No. 03234-1000 BP 17

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Troy School District
Troy WAN Renovations
TSD Bid No. 9336
Troy, Michigan

IDS Project No. 03234-1000 BP17

SECTION 00100 - ADVERTISEMENT FOR BIDS

DATE: July 12, 2006

PROJECT: Troy School District
Troy WAN Renovations
TSD Bid No. 9336
Troy, Michigan

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

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

BIDS RECEIVED: Until 3:00 pm local time on August 24, 2006, 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

at which time and place all Bids will be publicly opened and read aloud. A bid tabulation summary will be available.

The Bidding Documents will be on file on and after August 3, 2006 and may be examined at the following locations during regular business hours, Monday through Friday.

World Wide Web:

Troy School District 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.

F. W. Dodge Corporation, 21415 Civic Center Drive, Suite 115, Southfield, Michigan, 48034, (248) 799-0450.

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

A mandatory pre-bid conference is scheduled for August 10, 2006 at 9:00 AM local time. All Bidders are required to attend. Bidders shall meet at Troy School District Services Building, 4420 Livernois, Troy, Michigan, 48098. Bids will not be accepted from Bidders who do not attend the pre-bid conference.

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 there under, each in the amount of one hundred percent (100%) of the contract amount. The cost of such bonds shall be included in the Bid.

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

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

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

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

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

END OF ADVERTISEMENT FOR BIDS

SECTION 00200 - INSTRUCTIONS TO BIDDERS

1. DEFINITIONS

- A. Bidding Documents include the Bidding Requirements and the proposed Contract Documents. The Bidding Requirements consist of the Advertisement for Bids, Instruction to Bidders, the Bid Form and other bidding and contract forms. The proposed Contract Documents consist of the form of 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 Architect 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 there in 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. 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 Architect assumes no responsibility for errors or misinterpretations resulting from use of incomplete sets of Bidding Documents.

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, in a sealed envelope 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. Clearly identify the bid submission as: TROY SCHOOL DISTRICT, WAN RENOVATIONS, TSD BID NO. 9336, 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.
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.

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.
5. Bidders not bidding on materials, equipment and systems required by the Bidding Documents may propose voluntary alternates in space provided on Bid Form. The Owner is under no obligation to accept any voluntary alternate.

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. Bond shall not include the costs related to lease agreement provisions.
- 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. Bonds shall not include the costs related to lease agreement provisions.

- C. The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to be commenced prior thereto in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this paragraph.
- D. Should the Bidder refuse to enter into a Contract or fail to furnish such bonds, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- E. The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either the Contract has been executed and bonds have been furnished or the specified time has elapsed so that the Bid may be withdrawn or all Bids have been rejected.

6. MODIFICATIONS AND WITHDRAWAL OF BIDS

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

8. EXECUTION OF AGREEMENT

- A. The successful Bidder will be required to execute AIA Abbreviated Standard Form of Agreement between Owner and Contractor for Construction Projects of Limited Scope, AIA Document A107-1997.
- B. The Bidder to whom the Contract is awarded shall, within five (5) calendar days after notice of award and receipt of Contract forms from the Owner, sign and deliver required copies to the Owner.
- C. At or prior to delivery of the signed Contract, 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 Certificates of Insurance before the successful Bidder may proceed with the Work. Failure or refusal to provide Certificates of Insurance 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.

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 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 Architect a written request for interpretation thereof not later than seven days before bids will be opened. The person submitting the request shall be responsible for its prompt delivery.
- B. Interpretation, connection 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

- A. Addenda will be transmitted to all who are known by the Architect to have received a complete set of Bidding Documents.
- 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.

11. SUBSTITUTIONS

- A. No substitutions will be considered prior to receipt of Bids, unless a written request for approval has been received by the Architect 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 Architect's decision of approval or disapproval of a proposed substitution shall be final.
- B. If the Architect 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.

12. TAXES

- A. Contractor shall pay all taxes and include cost of all taxes in proposal

13. PERMITS AND FEES

- A. The Contractor shall be responsible for obtaining all required transportation permits from local, county and state agencies.

- B. All required DLEG Plan Approvals shall be the responsibility of the Contractor. The Owner will provide a site plan.

14. 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.

15. PREVAILING WAGE LAW

- A. Prevailing wage rates are required.

16. EQUAL OPPORTUNITY

- A. The Contractor and the Contractor's Subcontractors shall not discriminate against any employee or applicant for employment because of race, religion, color, sex or national origin. The Contractor shall take 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.
- 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.

Troy School District
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TSD Bid No. 9336
Troy, Michigan

IDS Project No. 03234-1000 BP 17

17. POST BID INFORMATION

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

END OF SECTION 00200

Troy School District
Troy WAN Renovations
TSD Bid No. 9336
Troy, Michigan

IDS Project No. 03234-1000 BP 17

SECTION 00410 - BID FORM

OWNER: Troy School District
4400 Livernois
Troy, Michigan 48098

PROJECT: Troy School District
Troy WAN Renovations
TSD Bid No. 9336
Troy, Michigan

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

NAME OF BIDDER: _____

ADDRESS: _____

TELEPHONE: _____

BID

Pursuant to and in compliance with your Advertisement for Bids Instructions to Bidders and other documents relating thereto, the undersigned proposes and agrees to furnish equipment, materials, and labor and perform all work necessary to complete the Troy School District contract for the WAN Renovations TSD Bid No. 9336 Project in accordance with the Drawings and Specifications prepared by Integrated Design Solutions, LLC dated August 3, 2006 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. The base bid shall include the bond cost.

VOLUNTARY ALTERNATES

The following Voluntary Alternates are offered by the Bidder. Provide a complete description of each Voluntary Alternate and indicate the amount to be added to or deducted from the Base Bid should the Owner accept the Voluntary Alternate. Attach additional pages if required to explain each Voluntary Alternate.

Voluntary Alternate No. 1: _____

Add/Deduct _____

_____ Dollars (\$_____).

Voluntary Alternate No. 2: _____

Add/Deduct _____

_____ Dollars (\$_____).

Voluntary Alternate No. 3: _____

Add/Deduct _____

_____ Dollars (\$_____).

TAXES

The Contractor shall pay all taxes and include cost of all taxes in proposal.

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

It is anticipated that the Board of Education will authorize the award of contract for construction at their regular meeting of September 2006. The undersigned agrees to substantially complete the Project by Dec 31, 2006.

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 three (3) copies to Owner and retain one (1) copy.

END OF BID FORM

SECTION 00450 -

FAMILIAL DISCLOSURE STATEMENT

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

List any Familial Relationships:

BIDDER:

By: _____

Its: _____

STATE OF MICHIGAN)
)ss.
COUNTY OF _____)

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

_____, Notary Public

_____ County, Michigan

My Commission Expires: _____

Acting in the County of : _____

END OF SECTION

SECTION 01000 - GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Summary of the Work.
 - 2. Work Schedule
 - 3. Work Restrictions.
 - 4. Contract Modification Procedures.
 - 5. Payment Procedures.
 - 6. Project Management and Coordination.
 - 7. Submittal Procedures.
 - 8. Quality Requirements.
 - 9. References.
 - 10. Temporary Facilities and Controls.
 - 11. Product Requirements.
 - 12. Execution Requirements.
 - 13. Closeout Procedures.

1.3 SUMMARY OF THE WORK

- A. Summary of the Work:
 - 1. Section 16710 - : Wide Area Fiber Network
 - a. Provide the services necessary to disconnect, remove and reinstall and/or furnish and install new, in accordance with the drawings and specifications all product required to support the WAN Renovations to acceptable industry standards.
- B. Ordinances and Fees:
 - 1. All work shall be executed and inspected in accordance with the rules and regulations of the State and/or local authorities governing the installation of the work involved.
 - 2. The General Building Permit and all other required permits, inspections, certificates, etc., shall be secured and paid for by the Contractor.
 - 3. The State of Michigan, Department of Labor and Economic Growth, Office of Fire Safety will review Drawings and Specifications and conduct inspections for fire safety. The Architect will submit Drawings and Specifications for such Electrical permits and for fire safety and pay plan review fees, the Contractor shall pay all permit fees.
 - 4. The Owner shall file Notice of Commencement and all other related documents as required by the Michigan Construction Lien Act No. 497 as amended.

1.4 WORK SCHEDULE

- A. Coordinate with the owner the installation schedule and determine a cutover schedule.

1.5 WORK RESTRICTIONS

- A. 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.
- B. 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.
- C. 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.
- D. 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.
- E. Owner-Furnished Equipment: The Owner will provide equipment as indicated. The Work includes providing support systems to receive Owner's equipment, and mechanical and electrical connections.
 - 1. The Owner will arrange and pay for delivery of Owner-furnished items in accordance with the Contractor's Construction Schedule, and will inspect deliveries for damage.
 - 2. If Owner-furnished items are damaged, defective or missing, the Owner will arrange for replacement. The Owner will also arrange for manufacturer's field services.
 - 3. The Contractor is responsible for designating the delivery dates of Owner-furnished items in the Contractor's Construction Schedule and for receiving, unloading and handling Owner-furnished items at the site. The Contractor is responsible for protecting Owner-furnished items from damage, including damage from exposure to the elements, and to repair or replace items damaged as a result of his operations.
- F. 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.
- G. Utility Tie-Ins for Data, RF, PA or Telephone: 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.
- H. 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.
- I. 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.
- J. 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.
- K. 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.
- L. Smoking is prohibited anywhere.
- M. Possession, sale or consumption of alcoholic beverages on Owner's property is strictly prohibited.
- N. The manufacturing, distribution, dispensing, possession or use of unlawful drugs on Owner's property is strictly prohibited and may result in criminal prosecution.

1.6 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. Following are sample guidelines for use in preparing detailed cost breakdown for each item in the Bulletin being quoted:

1. Material Cost:
List material giving unit cost
x number of units = cost _____
Add sales tax if applicable _____
Add applicable shipping costs _____

Subtotal Material Cost \$ _____
2. Labor Cost - List for each trade the:
Hourly rate x number of hours =
Labor cost _____

Add Labor Fringes as applicable:
F.I.C.A. _____
M.E.S.C. _____
Pension Contribution _____
Vacation Contribution _____
H.E.W. Insurance _____

Subtotal Labor Cost \$ _____
3. Equipment (heavy, i.e. cranes, earth
moving, hoists, etc.):
Rental Charge or equivalent per day
or week (including operating costs
except labor) _____

Subtotal Equipment Cost \$ _____
4. Overhead & Profit
 - a. Work performed by prime contractor
15% overhead and profit.
 - b. On work performed by subcontractor,
The prime contractor is allowed 7-1/2%
handling charge unless otherwise stated in
Contract Documents.
 - c. Work performed by subcontractor
15% overhead and profit
Subtotal Overhead & Profit \$ _____

TOTAL COST ITEM \$ _____

E. Quotations should be received by the Architect within two (2) weeks of issuance of the Bulletin.

1.7 PAYMENT PROCEDURES

- A. Schedule of Values: Submit a separate Schedule of Values for each building fourteen (14) days after award of Contract. Submit the Schedule of Values, as a preliminary Application for Payment, to the Architect at least 7 days before submittal of the initial Application for Payment.
 - 1. Format and Content: Use AIA Documents G702 and G703. Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.
 - 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 Architect 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 is the 15th day of each month. The period of construction Work covered by each Application for Payment is the period ending 15 days prior to the date for each progress payment and starting the day following the end of the preceding period.
- D. Payment Application Forms: Use AIA Document G 702 and Continuation Sheets G 703 as the form for Application for Payment.
- E. 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.
- F. 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 Architect.
- G. 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.
- H. Application for Payment at Substantial Completion: Actions and submittals that shall proceed or coincide with this application include:
- Occupancy permits and similar approvals.
 - Warranties (guarantees) and maintenance agreements.
 - Test/adjust reports.
 - Maintenance instructions.
 - Start-up performance reports.
 - Change-over information related to Owner's occupancy, use, operation and maintenance.
 - Final cleaning.
 - Application for reduction of retainage, and consent of surety.
 - Punch list of incomplete Work, recognized as exceptions to Architect's Certificate of Substantial Completion.
- I. Final Payment Application: Actions and submittals that shall precede or coincide with this application include:
- Completion of Project closeout requirements.
 - Completion of items specified for completion after Substantial Completion.
 - Transmittal of required Project construction records to Owner.
 - Proof that taxes, fees and similar obligations have been paid.
 - Removal of temporary facilities and services.
 - Removal of surplus materials, rubbish and similar elements.

1.8 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. Architect 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, Architect, 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:

- Tentative construction schedule.
- Critical Work sequencing.
- Designation of responsible personnel.
- Procedures for processing field decisions and Change Orders.
- Procedures for processing Applications for Payment.
- Distribution of Contract Documents.
- Submittal of Shop Drawings, Product Data and Samples.
- Preparation of record documents.
- Use of the premises.
- Office, Work and storage areas.
- Equipment deliveries and priorities.
- Safety procedures.
- First aid.
- Security.
- Housekeeping.
- Working hours.

C. Coordination Meetings:

1. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved. Project coordination meetings are in addition to regular progress meetings and special pre-installation meetings.
 - a. Request representation at each meeting by every party currently involved in coordination or planning for the construction activities involved.
2. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

D. Progress Meeting:

1. Progress meetings, with the representatives of the various trades and the Contractor in attendance, will be held by the Architect and Owner at regular intervals as directed. The Minutes of these meetings will be recorded by the Architect 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:
 - Interface requirements.
 - Time.
 - Updated schedule.
 - Past two (2) week completed tasks.

Past two (2) week incompleting tasks.
Two (2) week look ahead list of tasks to occur in the next two (2) weeks.
Sequences.
Deliveries.
Off-site fabrication problems.
Access.
Site utilization.
Temporary facilities and services.
Hours of Work.
Hazards and risks.
Housekeeping.
Quality and Work standards.
Change Orders.
Documentation of information for payment requests.

1.9 CONSTRUCTION PROGRESS DOCUMENTATION

- A. Construction Schedule: Submit a comprehensive, fully developed, horizontal bar chart, 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 two (2) weeks 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.

- B. Daily Construction Reports: Prepare a daily construction report, recording the following information concerning events at the site; and submit duplicate copies to the Architect at weekly intervals:

- List of subcontractors at the site.
- Approximate count of personnel at the site.
- Accidents and unusual events.
- Meetings and significant decisions.
- Stoppages, delays, shortages, losses.
- Emergency procedures.
- Orders and requests of governing authorities.
- Change Orders received, implemented.
- Services connected, disconnected.
- Equipment or system tests and start-ups.
- Partial Completions, occupancies.
- Substantial Completions authorized.

1.10 SUBMITTAL PROCEDURES (01330)

- A. Shop Drawings, Product Data and Samples: Submit Shop Drawings, Product Data and Samples to the Architect for review. Architect will provide to the Contractor the submittal forms that Must be filled out and accompany each submittal.
1. Coordinate the preparation and processing of submittals with the performance of the work. Coordinate each separate submittal with other submittals and related activities such as testing, purchasing, fabrication, delivery and similar activities and require sequential activity.
 - a. Coordinate the submittal of different units of interrelated work so that one submittal will not be delayed by the Architect's need to review a related submittal. The Architect reserves the right to withhold action on any submittal requiring coordination with other submittals until related submittals are forthcoming.
 2. Allow sufficient time so that the installation will not be delayed as a result of the time required to properly process submittals, including time for resubmittal, if necessary.
 - a. Allow ten (10) working days for the Architect's review of each submittal. Allow a longer time period where processing must be delayed for coordination with subsequent submittals. The Architect will advise the Contractor promptly when it is determined that a submittal being processed must be delayed for coordination.
 - b. No extension of time will be authorized because of the Contractor's failure to transmit submittals to the Architect/Engineer sufficiently in advance of the work.
 3. The Contractor shall review Shop Drawings, product Data and Samples prior to submission. Notify the Architect in writing of any deviations in the submittals from requirements of the Contract Documents.
 - a. Information required on shop drawings includes, dimensions, identification of specific products and materials which are included in the work, compliance with specified standards and notations of coordination requirements with other work. Provide special notation of dimensions that have been established by field measurement. Highlight, encircle or otherwise indicate deviations from the contract documents on the shop drawings.

- b. Submit samples for the Architect's visual review of general generic kind, color, pattern, and texture, and for a final check of the coordination of these characteristics with other related elements of the work. Samples are also submitted for quality control comparison of these characteristics between the final sample submittal and the actual work as it is delivered and installed.
4. Architect's acceptance shall not relieve the Contractor from responsibility for errors in submittals.
5. Do not use Shop Drawings, Product Data or Samples without an appropriate stamp indicating Architect/Engineer's action taken.
6. Submit the following:
 - a. Shop Drawings: One reproducible sepia print and two blue or black line prints.
 - b. Product Data: Submit three (3) copies.
 - c. Samples: Submit three (3) sets of samples.
7. Fire Performance Affidavits: Submit in triplicate, notarized affidavits for the products required as specified in the various technical sections of the specifications. Affidavit shall be signed and notarized, and in the following format:

AFFIDAVIT

This is to certify that, (Name of Product) which was or will be furnished to (Company making Application of Product) for (Job or Project Name and Address) is the same in all respects in content, and specifications for mixing and/or application as the specimen tested by (Name of Laboratory) or their project or test number (Test Number) dated (Date of Test).

Flame Spread _____
Fuel Contributed _____
Smoke Developed _____

1.11 QUALITY REQUIREMENTS (01400)

- A. The Owner may employ the services of a testing agency. This will be for the Owner's purpose. Any information or assistance furnished by this agency will not relieve the Contractor of his responsibility for the work and the removal and replacement of any faulty work done which is not in accordance with plans and specifications without additional cost to the Owner.

1.12 REFERENCES (01420)

- 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.

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.
- D. Standards of Industry: Reference to standards, codes, and recommendations shall be the latest edition of such publications adopted and published at date of bids. Work shall be installed according to the following industry standards when applicable:
 1. UL Underwriter's Laboratories, Inc.
 2. ASA American Standard Association
 3. ASHRAE American Society of Heating, Refrigeration and Air Conditioning Engineers
 4. ASME American Society of Mechanical Engineers
 5. ASTM American Society for Testing and Materials
 6. ANSI American National Standards Institute
 7. BICSI Building Industry Consulting Service International
 8. EIA Electronics Industries Association
 9. FCC Federal Communications Commission
 10. ICEA Insulated Cable Engineers Association
 11. IEEE Institute of Electrical and Electronics Engineers
 12. ISO International Organization for Standardization
 13. NEC National Electrical Code
 14. NEMA National Electrical Manufacturer's Association
 15. NFPA National Fire Protection Association.
 16. TIA Telecommunications Industry Association
 17. Any local state or national plumbing and building codes having jurisdiction.

1.13 TEMPORARY FACILITIES AND CONTROLS (01500)

A. Temporary Water, Power and Lighting:

1. The Owner will furnish at no cost to the Contractor water and electricity for construction purposes. All such water and electricity shall be obtained from existing outlets designated by the Owner's Representative. If the Contractor's requirements exceed the characteristics at the designated outlets, the Contractor shall provide and pay for additional facilities as he may require.
 - a. Water shall not be taken from Fire Protection System.

B. Temporary Toilets:

1. The Owner's will allow the use of designated toilet facilities for use by all workers employed on the project. Keep the facilities clean and in sanitary condition at all times.

C. Temporary Field Office:

1. The Owner will make space available for the Contractor's temporary field office Provide telephone service and all furniture and supplies as required for the temporary field office.

D. 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.
- E. Temporary Storage: Storage space within the building is limited. Each trade shall arrange for storage sheds and/or trailers on site for storage of materials, equipment, supplies and tools as required. The Owner accepts no responsibility for security of such storage sheds or trailers.
 1. Storage of materials will not be allowed on roofs.
- F. Temporary Lifts and Hoists: Provide facilities for hoisting materials and employees. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
- G. Contractor Employee Identification: All persons working on-site are required to have and wear an identification badge at all times.
- H. Project Identification and Temporary Signs:
 1. No advertising, contractor's sign or project sign will be permitted on the site.
- I. 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.
- J. Use of Owner's Cafeteria: Contractor will not be allowed the use of Owner's cafeteria.

1.14 PRODUCT REQUIREMENTS (01600)

- A. Product Substitutions: Contractor's request for substitution will be received and considered when extensive revisions to the Contract Documents are not required, when the proposed changes are in keeping with the general intent of the contract documents, when the request are timely, fully documented and properly submitted, and when one or more of the following conditions is satisfied, all as judged by the Architect; otherwise the request will be returned without action except to record non-compliance with these requirements.
- B. The Architect will consider a request for substitution for the following reasons only:
 1. Where the request is directly related to an "or equal" clause in the contract documents.

2. Where the specified product cannot be provided within the Contract Time. However, the request will not be considered if the product cannot be provided as a result of the Contractor's failure to pursue the work promptly or to coordinate the various activities properly.
3. Where the specified product cannot receive necessary approval by a governing authority, and the requested substitution can be approved.
4. Where a substantial advantage is offered the Owner, in terms of cost, time, energy conservation or other considerations of merit, after deducting offsetting responsibilities the Owner may be required to bear. These additional responsibilities may include such considerations as additional compensation to the Architect for redesign and evaluation services, the increased cost of other work by the Owner or separate contractors, and similar considerations.
5. When the specified product cannot be provided in a manner which is compatible with other materials of the work, and where the Contractor certifies that the substitution will overcome the incompatibility.
6. When the specified product cannot be properly coordinated with other materials in the work, and where the Contractor certifies that the proposed substitution can be properly coordinated.
7. When the specified product cannot receive a warranty as required by the contract documents and where the contractor certifies that the proposed substitution receive the required warranty.

C. Substitution Requests:

1. Requests for Substitutions: Do not submit substitution request as a shop drawing submittal. Submit a separate request for each request for substitution. In each request identify the product to be replaced by the substitution, include related specification section and drawing numbers, and complete documentation showing compliance with the requirements for substitutions. Include the following information, as appropriate, with each request:
 - a. Provide complete product data, drawings and descriptions of products, and fabrication and installation procedures.
 - b. Provide samples if requested.
 - c. Provide a detailed comparison of the significant qualities of the proposed substitution with those of the work originally specified. Significant qualities include elements such as size, weight, durability, performance and visual effect.
 - d. Provide complete coordination information. Include all changes required in other elements of the work to accommodate the substitution.
 - e. Provide a statement indicating the effect the substitution will have on the work schedule in comparison to the schedule without approval of the proposed substitution. Include information regarding the effect of the proposed substitution on the Contract Time.
 - f. Provide complete cost information, including a proposal of the net change in the Contract Sum.
 - g. Include in this certification, the Contractor's waiver of rights to additional payment or time, which may subsequently be necessary because of the failure of the substitution to perform adequately.

D. Sample Substitution Request Form:

1. The following is a Sample Substitution Request Form, which must be completed and submitted with any request for substitutions.

SAMPLE SUBSTITUTION REQUEST FORM

Re: Project Name and Architects Project Number

1) SPECIFICATION REFERENCE

Indicate specific pages and paragraphs of the Specifications for which a substitution is proposed.

2) PRODUCT TO BE SUBSTITUTED

Indicate specific product name, model number and manufacturer for proposed substitution.

3) REASON FOR SUBSTITUTION

Provide reason for proposed substitution and reason why specified product is not considered.

4) COMPARISON OF SPECIFIED PRODUCT AND SUBSTITUTION

Provide detailed comparison of specified product with proposed substitution.

5) COST INFORMATION

Indicate what effect (add, deduct, no change) the proposed substitution has on Project cost.

6) EFFECT ON CONSTRUCTION SCHEDULE

Indicate what effect the proposed substitution has on the construction schedule.

7) LICENSE FEES OR ROYALTIES

Indicate if there are license or royalties.

8) AVAILABILITY OF MAINTENANCE SERVICE/SOURCE OF REPLACEMENT MATERIALS

Indicate availability of maintenance service and source of replacement parts or material for proposed substitution.

1.15 EXECUTION REQUIREMENT (01700)

- A. Establish benchmarks and markers to set lines and levels as needed to properly locate each element of the Work. Calculate and measure required dimensions within indicated or recognized tolerances. Do not scale Drawings to determine dimensions.

1.16 CUTTING AND PATCHING (01731)

- A. Cutting of holes and openings through existing slabs, walls, ceilings, partitions, etc., of existing building required for the installation of new piping conduits, ducts, etc., (including patching and repairing) shall be performed by the trade requiring such openings without additional cost to the Owner.
- B. The cutting of holes through the existing building construction shall only be done by the use of abrasive saw 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 work. 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 column, shall not be done without the specific permission of the Architect.
- D. Do not cut and patch work exposed in the building's exterior or in its occupied spaces in a manner that would, in the Architect's opinion, result in lessening the building's aesthetic qualities. Do not cut and patch in a manner that would result in substantial visual evidence of cut and patch work. Remove and replace work judged by Architect to be cut and patched in a visually unsatisfactory manner.
- E. Restore exposed finishes of patched areas and extend finish restoration into retained adjacent construction in a manner that will eliminate evidence of patching and refinishing.
- F. Where removal of walls extends one finished area into another, patch and repair floor, wall and ceiling surfaces, to provide an even surface of uniform color and appearance.
- G. Where patching occurs in a painted surface, extend final paint coat over entire unbroken surface containing the patch.

1.17 CLOSEOUT PROCEDURES (01770)

- A. At time of substantial completion, submit record drawings, maintenance manuals and warranties.
- B. Record Drawings: Maintain a clean, undamaged set of blue line prints of Contract Drawings. Mark the set to show the actual installation where the installation varies with the Work as originally shown. Give particular attention to concealed elements that would be difficult to locate at a later date. Mark record sets with red erasable pencil. Transfer all marks from blues lines into electronic format and provide Owner record drawings in AutoCAD LT2002 version and two (2) blacklines of the final record drawings.
- C. Record Shop Drawings and Product Data: Maintain one copy of shop drawings and product data. Mark these documents to show variations in actual Work performed from work shown on the Contract Documents.

- D. Maintenance Manuals: Organize operating and maintenance data into suitable sets of manageable size. Bind properly indexed data in heavy-duty, 2-inch, 3-ring loose-leaf binders with pocket folders for folded sheet information. Include the following types of information:
 - 1. Emergency instructions.
 - 2. Spare parts list.
 - 3. Copies of warranties.
 - 4. Inspection procedures.
 - 5. Shop drawings and product data.
- E. Guarantee: Furnish the Owner with a written guarantee to remedy any defects due to faulty materials or workmanship, which appear in the work within one year from date of final acceptance by the Owner.
 - 1. Provide written guarantees from prime subcontractors.
- F. Submit written warranties to Architect to coincide with date of substantial completion.
 - 1. Bind warranties and bonds in heavy-duty, commercial quality, durable, 3-ring loose-leaf binder.
 - a. Provide dividers with celluloid tabs for each separate warranty.
 - b. Provide types description of product or installation including name of product, name, address and telephone number of the installer.

END OF SECTION 01000

SECTION 16710 - WIDE AREA FIBER NETWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Specification, in conjunction with the Drawings, establishes the requirements necessary to achieve the intended performance and function of a Wide Area Fiber Network (WAFN).
- B. Provide the services necessary to engineer, furnish, install and to provide maintenance support for a WAFN 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 WAFN complete and in satisfactory operating condition, excluding those items listed under "Work by Others."
- C. Verify dimensions and conditions at the job site prior to installation, and perform installation in accordance with these Specifications, Manufacturers recommendations and the latest edition or revision of all applicable codes and standards.
- D. The WAFN includes providing and integrating the following principal systems:
 - 1. Inter-Building Single-mode Fiber
 - 2. Intra-Building Single-mode Fiber
 - 3. Splice Enclosures
 - 4. SC and FC/APC Connectors
- E. The owner reserves the right to reject any or all bids and to select the bid that is considered to serve "THE BEST INTEREST OF THE OWNER".

1.3 WIRES

See drawings.

1.4 CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS

- A. It is intended that any contractor furnishing materials or labor necessary for the completion of this specification shall furnish it in compliance with this specification. Where conflict exists with other specifications concerning such materials and labor, this specification takes precedence unless otherwise approved in writing by the Engineer.
- B. Drawings pertaining to this specification shall be considered as a part of said specification and shall be a part of the bid documents.

1.5 RELATED WORK PROVIDED BY OTHERS

- A. Wide Area Network electronic equipment.

1.6 REQUIREMENTS OF REGULATORY AGENCIES

- A. All components and installations shall bear an Underwriters' Laboratories (UL) listing and shall conform with the latest edition or revision of the following codes and standards:
 - 1. ANSI - American National Standards Institute
 - 2. ASTM - American Society for Testing and Materials
 - 3. EIA - Electronics Industries Association
 - 4. FCC - Federal Communications Commission
 - 5. ICEA - Insulated Cable Engineers Association
 - 6. IEEE - Institute of Electrical and Electronics Engineers
 - 7. ISO - International Organization for Standardization
 - 8. NEC - National Electrical Code
 - 9. NEMA - National Electrical Manufacturer's Association
 - 10. NFPA - National Fire Protection Association.
 - 11. TIA - Telecommunications Industry Association
 - 12. UL - Underwriters Laboratories, Inc.
 - 13. BICSI - Building Industry Consulting Services International
- B. The code or standard establishing the more stringent requirements shall be followed where areas of conflict occur between codes and standards or between codes and standards and Drawings and Specifications.

1.7 INSTALLER QUALIFICATIONS

- A. The installation of the WAFN 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 years of continuous experience in this area and have made installation similar to this and of this size or larger.

1.8 SUBMITTALS

A. Pre-Construction Drawings

1. The contractor shall submit one-line pre-construction drawings. The drawings shall include the proposed layout of backboards in each building, specific measurement and engineering detail, including core drilling, if required. The locations for the headend are shown on the drawings.
2. Drawings shall be provided clearly depicting any proposed modification to the project drawings. Any modifications shall be highlighted on the shop drawings.
3. Drawings shall be provided indicating proposed mounting arrangements and details of all splice enclosures, framework supports and interface with adjacent architecture.

B. As-Built Documentation

1. After construction of the WAFN, but prior to system acceptance, the Contractor shall submit as-built documentation for the as-installed plant. Scale drawings for as-built documentation must be produced for each media installed. Drawings shall be provided using AutoCAD format release 2000 or above. The following is the minimum detail required:
 - a. Outside plant construction documentation detailing site maps, route maps, splice locations and a plan and profile of all manholes/conduits and handholds. Also include manhole details (i.e. butterfly type), cell assignments and building entrance diagrams.
 - b. Drawings shall indicate equipment racks, equipment rack elevations, cable labeling schemes, patch panel labeling scheme, cable routes and the location of ancillary items such as splice enclosures.

C. Product Data

1. Contractor shall provide copies of Manufacturer's specification sheets for all materials and components bid. The district reserves the right to reject any component that does not meet this specification completely.

1.9 SAMPLES

- A. As specified in other sections of these specifications, this Contractor shall furnish samples of all material to be used in the construction of the WAFN.

1.10 EXISTING CONDITIONS

- A. This Contractor shall visit all sites prior to submitting a bid. No subsequent allowance will be made due to failure to thus observe and verify conditions, which may affect the work. Report to the Engineer any discrepancies between this specification and existing conditions and similarly report obvious omissions.

1.11 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. All trash and refuse generated in district and city buildings shall be removed by the Contractor at the completion of each work day or more frequently as needed. The disposal shall be at the Contractor's expense.
- E. Restoration and Repair
 - 1. The Contractor shall be responsible for all repair of broken or disturbed utilities, reconstruction of damaged or destroyed district equipment and materials, fire stopping and all patching related to construction of the proposed distribution system.
 - 2. The contractor shall be responsible for restoration of all grounds.
- F. The Contractor will be responsible for supplying their own secure areas for all storage requirements which are part of the implementation, the contractor shall be responsible for providing security and insurance for materials stored or installed during all phases of installation and until the systems are certified complete by the Contractor and accepted by the District.

1.12 QUALITY ASSURANCE

- A. All materials shall be new, shall conform to current applicable industry standards, NEMA Standards, and shall be Underwriter's Laboratories Standards listed and labeled unless otherwise indicated. Defective or damaged materials shall be replaced or repaired

prior to final acceptance, in a manner which meets the approval of the District and the Engineer at no additional cost to the district. All equipment and material shall comply with the latest standard for EIA/TIA, IEEE, NEMS, NEC, UL, REA, IPCEA, BOCA, ANSI and ASTM. The National Electric Code shall be used for minimum requirements only and not as design criteria.

- B. Procure and pay for all necessary right-of-way permits, licenses, City of Troy Bond Application, MDOT Individual Application and Permit, Oakland County Road Commission and inspections and observe any requirements stipulated therein. Conform in all trades with all local regulations and codes.
- C. Generate and engineer all profile/elevation drawings that are required by the permitting agencies in order to obtain the necessary permits for the required scope of work.
- D. Comply with federal, state and local regulations and applicable union regulations.

1.13 WARRANTY

- A. Contractor shall warranty all equipment, components and installation comprising the WAFN described in this specification, and furnished by Contractor under contract for same, for a minimum period of two years following the districts acceptance of the system. Such acceptance date or dates shall be formally acknowledged by the district or the Engineer. Contractor's warranty shall commence on the day following such acceptance and shall conclude two years later. By accepting this obligation, contractor warrants that the system shall be in and remain in good working order and is installed in a workmanlike manner, compliant with the specifications. During the warranty period contractor shall correct all deficiencies in materials, components or workmanship discovered by the district, and shall correct any failures in performance of the systems as described in this specification, and any change orders agreed between the district and the Contractor.
- B. Vendor shall fulfill such warranty obligations by taking all necessary action to correct, repair or replace the non-performing or improperly installed equipment and components, at no cost to the district, so as to restore the WAFN to the level of performance and /or quality set forth in this specification. Restoration or repair shall be deemed accepted by the district based upon inspection by the districts representative, completion of acceptance tests as defined herein on the affected portion of the system, or other appropriate approval process acceptable to the district. All changes and/or repairs made by Contractor in fulfillment of the warranty obligation shall be documented in accordance with the standards for Documentation contained in this specification.
- C. Additional warranty provisions shall apply to all types of cables installed in the system. These cables shall be warranted to perform in accordance with the specifications contained herein for a period of five (5) years from the date of acceptance. The district will accept warranty from manufacturer of the cable in place of Contractor's

warranty for this additional warranty, provided that such manufacturer's warranty covers both replacement of cable and all installation of such replacement within the system, at no cost to the district.

- D. If the Contractor shall fail to provide his best efforts to perform warranty obligations in a timely manner, the district, at its sole discretion, will secure the necessary services from other suppliers selected by the district, and Contractor shall reimburse the district for the cost of such services.

1.14 MAINTENANCE CONTRACT

- A. Contractor shall agree to offer to the district a Maintenance Contract for repair, replacement or modification of the system upon the expiration of the warranty period. The district may elect to enter into such Contract, or make other arrangements at the districts sole discretion, and will inform Contractor of its intentions in this regard not later than 30 days before the expiration of the warranty period. If not so notified, Contractor may be excused from providing such Maintenance Contract at its option.
- B. Contractor shall offer a Maintenance contract covering service 24 hours per day, Monday through Sunday. The district will classify requests for maintenance services as major or minor, based on the likely impact on the districts ability to be able to continue substantial use of the network. Contractor shall respond to major requests by dispatching maintenance personnel, with appropriate tools and components such that they arrive within (2) hours of receiving notification from the district. Response for minor requests shall be similar, but shall be within 24 hours. These response standards shall apply during the warranty period.
- C. Contractor agrees that all maintenance requests shall be handled expeditiously in accordance with best commercial practice. Contractor shall provide the district with an Escalation Plan for the resolution of all maintenance problems which cannot be completed within 8 hours for major items and 24 hours for minor items. All warranty services shall automatically be classified as major. Contractor shall be responsible for notifying the district of the need for application of the Escalation Plan.
- D. Contractor shall provide the district with a sample Maintenance Contract, including Escalation Plan, with its response to this Bid.

1.15 SCOPE OF WORK

- A. The Contractor shall install single mode optical fiber cable for Troy Public Schools as indicated on the drawings. Testing after installation and termination will be required.
- B. The intent is to repair/renovate the existing wide area fiber network for the transmission of voice, data and video applications to and between all buildings.

- C. The system shall include all required fiber, cables, supports, enclosures, splices, connectors, engineering, developmental charges, cable tests, and accessories as specifies herein for a complete and functional system.
- D. The Contractor shall provide all labor, materials, equipment, and incidentals necessary and required for completion of the work.
- E. All data fiber strands shall be terminated at each building headend with SC connectors. All video fiber strands shall be terminated at each building headend with FC/APC connectors.
- F. All fiber strands shall be fully tested in compliance with these specifications.

1.16 SURVEYS AND MAKE READY

- A. No new DTE Energy/AT&T permits will be required as part of this project.
- B. If the Contractor elects to change routes, the cost for utility surveys and any make-ready cost will be the responsibility of the Contractor.

PART 2 - PRODUCTS

2.1 GENERAL

- A. The following sections specifically list the acceptable material 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. All miscellaneous equipment required for a complete, professional installation shall be included in the base bid. No allowances for any additional equipment, hardware, cabling, or miscellaneous will be considered unless specifically excluded from the base bid.

2.2 MANUFACTURES

- A. Fiber Optic Cable
 - 1. Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among these considered acceptable:
 - a. Corning
 - b. Avaya
 - c. Alcatel

- d. Engineer approved equal

B. Fiber Splice Hardware

- 1. Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among those considered acceptable:
 - a. Corning
 - b. Raychem
 - c. Avaya
 - d. ADC
 - e. Engineer approved equal

C. Fiber Connectors (SC and FC/APC)

- 1. Products made by the following manufacturers, provided they comply with the requirements of the contract documents, will be among these considered acceptable:
 - a. Corning
 - b. Amp
 - c. Avaya
 - d. 3M
 - e. Engineer approved equal

2.3 SINGLEMODE OUTDOOR LOOSE TUBE FIBER CABLE

A. General

- 1. The cable shall meet all requirements stated in REA-PE-90 as well as those stated within this specification. The cable shall an accepted product of the United States Department of Agriculture Rural Electrification Administration as meeting the requirements of REA-PE-90.
- 2. The cable shall be new, unused, and of current design and manufacture.

B. Fiber Characteristics

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

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

1. Typical Core Diameter: $8.3\ \mu\text{m}$
 2. Cladding Diameter: $125.0 \pm 1.0\ \mu\text{m}$
 3. Core-to-Cladding Offset: $< 1.0\ \mu\text{m}$
 4. Coating Diameter: $250 \pm 15\ \mu\text{m}$
 5. Attenuation: .35 dB/km @ 1310 nm, .25 dB/km @ 1550 nm
- D. The coating shall be a dual layered, UV cured acrylate applied by the fiber manufacturer.
- E. The coating shall be mechanically or chemically strippable without damaging the fiber.
- F. Specifications for Outdoor Cables
1. Optical fibers shall be placed inside a loose buffer tube.
 2. Each buffer tube shall contain up to 12 fibers.
 3. The fibers shall not adhere to the inside of the buffer tube.
 4. Each fiber shall be distinguishable from others by means of color. These colors shall meet EIA/TIA 598 "Color Coding for Fiber Optic Cables".
 5. Buffer tubes containing fibers shall also be color-coded with distinct and recognizable. These colors shall meet EIA/TIA-598,"Color Coding of Fiber Optic Cables."
 6. In buffer tubes containing multiple fibers, the colors shall be stable during temperature cycling and not subject to fading or smearing onto each other or into the gel filling material. Colors shall not cause fibers to stick together.
 7. Buffer tubes shall be of a dual-layer construction with the inner layer made of polycarbonate and the outer layer made of polyester.
 8. The central anti-buckling member shall consist of a glass reinforced plastic rod. The purpose of the central member is to prevent buckling of the cable.
 9. Each buffer tube shall be filled with a non-hygroscopic, non-nutritive to fungus, electrically non-conductive, homogenous gel. The gel shall be free from dirt and foreign matter. The gel shall be readily removable with conventional nontoxic solvents.
 10. The cable core interstices shall be filled with a water-blocking compound. The compound shall be a thixotropic gel containing a Super Absorbent Polymer (SAP) material. The gel shall be non-nutritive to fungus, electrically non-conductive and homogenous. The gel shall be free from dirt and foreign matter and shall be readily removable with conventional nontoxic solvents.
 11. Binders shall be applied with sufficient tension to secure the buffer tubes to the central member without crushing the buffer tubes. The binders shall be non-hygroscopic, non-wicking (or rendered so by the flooding compound), and dielectric with low shrinkage.
 12. The cable shall contain at least one ripcord under the sheath for easy sheath removal.
 13. Tensile strength shall be provided by high tensile strength aramid yarns and/or fiberglass.
 14. The high tensile strength aramid yarns/fiberglass shall be helically stranded evenly around the cable core.

15. All dielectric cables shall be sheathed with medium density polyethylene. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.
16. Armored cables shall have an inner sheath of medium density polyethylene. The armor shall be a corrugated steel tape, plastic-coated on both sides for corrosion resistance. The outer jacket shall be applied over the corrugated steel tape armor. The outer jacket shall be a medium density polyethylene. The polyethylene shall contain carbon black to provide ultraviolet light protection and shall not promote the growth of fungus.
17. The jacket or sheath shall be free of holes, splits, and blisters.
18. The cable jacket shall contain no metal elements and shall be of a consistent thickness.
19. The jacket or sheath shall be marked with the manufacturer's name, the words "Optical Cable", year of manufacture, and sequential meter marks. The markings shall be repeated every one meter.
20. The maximum pulling tension shall be 2700 N (600 lbs) during installation (short term) and 890 N (200 lbs.) long term installed.
21. The shipping, storage, and operating temperature range of the cable shall be -40°C to +70°C. The installation temperature range of the cable shall be -30°C to +70°C.

G. Quality Assurance Provisions

1. All optical fibers shall be proof tested by the fiber manufacturer at a minimum load of 50 kpsi.
2. All optical fibers shall be 100% attenuation tested. The attenuation of each fiber shall be provided with each cable reel.

2.4 SINGLEMODE INDOOR TIGHT BUFFER FIBER CABLES

A. General

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

B. Fiber Characteristics

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

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

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

D. Cable Construction

1. For Cables with Less than 6 Fibers:
 - a. The fibers shall be stranded around an aramid yarn central member and surrounded by layered aramid yarns. The aramid yarns shall serve as the tensile strength member of the cable. A ripcord shall be applied between the aramid yarns and the outer jacket to facilitate jacket removal. The outer jacket shall be extruded over the aramid yarns for physical and environmental protection.
2. For Cables with 12 Fibers:
 - a. The individual fibers shall be stranded around a glass reinforced plastic (GRP) central member and surrounded by layered aramid yarns. The GRP central member shall provide anti-buckling and ensure consistent attenuation performance across the operating temperature range of the cable. A ripcord shall be applied between the aramid yarns and the outer jacket to facilitate jacket removal. The outer jacket shall be extruded over the aramid yarns for physical and environmental protection.
3. Strength Members:
 - a. The strength member shall be a high modulus aramid yarn. The aramid yarns shall be helically stranded around the buffered fibers. A non-toxic, non-irritant talc shall be applied to the yarn to allow the yarns to be easily separated from the fibers and the jacket.
4. Cable Jacket:
 - a. The jacket shall be continuous, free from pinholes, splits, blisters, or other imperfections. The jacket shall be smooth, as is consistent with the best commercial practice. The jacket shall provide the cable with a tough, flexible, protective coating, able to withstand the stresses expected in normal installation and service.
5. The cable jacket color shall be yellow.
6. The cable jacket shall be designed for easy removal without damage to the optical fibers by incorporating a ripcord under each cable jacket. A non-toxic, non-irritant talc shall be applied to the aramid yarns to allow the yarns to be easily separated from the fibers and the jacket.

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

E. Identification

1. The individual fibers shall be color coded for identification. The color-coding shall be in accordance with EIA/TIA-598 Color Coding of Fiber Optic Cables. The coloring material shall be stable over the temperature range of the cable, shall not be susceptible to migration, and shall not affect the transmission characteristics of the optical fibers. Color-coded buffered fibers shall not adhere to one another. When fibers are grouped into individual units, each unit shall be numbered on the unit jacket for identification. The number shall be repeated approximately every six inches.
2. Jacket Printing:
 - a. The outer cable jacket shall be marked at least every two feet with the manufacturer's name or UL file number, date of manufacture, fiber type, flame rating, UL symbol, and sequential length markings. The print color shall be black. The printing shall be permanent and legible for the life of the cable.

2.5 SC AND FC/APC CONNECTORS

A. Specifications (SC):

1. Attenuation: Typical 0.3dB, @ 1550nm
2. Connector Durability: <0.2dB increase / 1000 matings
3. Operating Temperatures: -40 degrees C to + 60 degrees C, temperature cycling
4. Storage Temperature: -40 degrees C to + 80 degrees C
5. Materials:
 - a. Tip: Ceramic Ferrule
 - b. Housing: Composite
 - c. Fiber Size: 8.3/125 micron single-mode fiber

B. Specifications (FC/APC):

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

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

2.6 SPLICE ENCLOSURES

A. Outdoor Enclosures

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

B. Indoor Enclosure

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

PART 3 - EXECUTION

3.1 SITE REQUIREMENT

A. Repair and renovate single mode fiber for Troy School District

Building/Area	# of SM Strands	From
1. Long Lake Repair	24 count	Backbone
2. Baker Middle School	12 count	Backbone

3.2 TIMELINE

- A. Fiber cable construction will begin December 20, 2006. Work may be performed during recesses or after normal school hours or during periods in which the affected buildings are not occupied by students (i.e. holiday breaks, weekend, etc.). Adherence to a schedule of working hours which is agreeable with the Owner will be required.
- B. All fiber will be terminated by December 31, 2006.

- C. Fiber cable testing will be complete by January 3, 2007.
- D. WAN Renovations complete by January 3, 2007.

3.3 INSTALLATION

A. General:

1. All work materials shall be removed at the end of the workday and the work area left in the same condition as found.
2. This Contractor shall have a minimum of five years of experience.
3. The bidder shall maintain a fully equipped service organization capable of furnishing inspection, service and repair to the network, including replacement parts.
4. Work in classroom areas and corridors shall be performed during recesses or after normal school hours or during periods in which building is not occupied by students (i.e. holiday breaks, parent/teacher conferences, half days, etc.). Adherence to a schedule of working hours which is agreeable with the Owner will be required.
5. The individual fibers shall be color coded for identification. The optical fiber color-coding shall be in accordance with EIA/TIA-598, "Color Coding of Fiber Optic Cable."
6. All cables must be routed and managed for a neat and professional appearance. All work must be installed in a neat and workman like manner.
7. 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 optical characteristics of the cables.
8. All fiber optic cable splices will be fusion spliced.
9. All work to be done with extreme caution.
10. All work to be performed in strict accordance with the applicable codes or requirements of any regulating governmental agency, or the right-of-way grantor.

B. Aerial Construction

1. All outside fiber optic cable will be loose buffer tube, 6 fibers per tube, filled, dielectric/central member / non-armored and PE (polyethylene) outer sheath.
2. Fiber optic cable will be double lashed to 6.6M suspension strand.
3. Lashing wire will follow lay of strand wire under grip.
4. Place "Southfield Public Schools Fiber Optic Cable" tags at all splice locations.
5. Place "Southfield Public Schools Fiber Optic Cable" tags on all poles.
6. Bond to all transformer poles.
7. Bond and ground to all light and camera poles when within twelve (12) inches.
8. Exercise extreme caution when working around electrical wires.
9. All fiber splices will be housed in splice trays inside weatherproof enclosures. Use splice trays with organizers designed for use of RTV.
10. All splices must be well organized and protected.

11. The minimum bend radius requirement must not be violated. Splice trays must be large enough to handle worst case bending.
12. Splice trays must provide strain relief for buffer tubes.
13. Use non-metallic, snow-shoe type fiber optic storage device for excess cable slack.
14. Do not exceed the manufacturer specifications concerning minimum bending radius.
15. The minimum bending radius of fiber optic cable under tension will not exceed 20 times the cable diameter.

C. Underground Construction

1. All conduit will be 4-inch schedule 40 (i.e., PVC or BSP/GSP, HDPE, manufactured split PVC or split BSP/GSP).
2. Contractor is responsible for locating all utilities 48 hours prior to construction activity.
3. All underground obstructions, when located, will require the placement of a marker.
4. All buried conduit/cable will be placed at 36 inches minimum cover unless specified otherwise on the construction drawings.
5. All 90 degree bends in conduit construction will be a minimum 38.2 inches radius unless specified otherwise on the construction drawings.
6. All split conduit bends and solid PVC bends shall require concrete encasement, unless specified otherwise on the construction drawings.
7. All conduit entrances into building and HDPE laterals at poles will be plugged after placement of fiber optic cables.
8. Utility locations will be verified at least 100 feet in advance of trenching or plowing, so that changes in cable placement can be made in event of conflicts.
9. All buried obstructions are the responsibility of the contractor to locate, protect, and repair if damaged.
10. Any and all improvements, such as, asphalt or concrete pavement, curbs, gutters, walks, drainage ditches, embankments, shrubs, trees, grass sod, etc., if damaged shall be restored to original or better condition.
11. All underground fiber will be placed in 1 1/2 inch smooth wall innerduct.
12. Innerduct will be orange in color.
13. A tracer wire will be installed with all underground / buried fiber optic cable.
14. Pumping of manholes will be the responsibility of the contractor.
15. Caution will be used when working in manholes, air exchange requirements and OSHA regulations will be followed.

D. Intra-building Construction

1. At the building entrance, outdoor loose tube fiber cable will be transition spliced to indoor tight buffered fiber cable.
2. Transition splice enclosure will be wall mounted and secured to four (4) foot by four (4) foot plywood backboard provided by this contractor.
3. All indoor fiber optic cable will be NEC rated OFNP.

4. Splicing from outside fiber optic cable to OFNP will be within 50 feet of entering the building.
5. Cable slack shall be provided at the building entrance and head end room. A minimum of 10-meters (approx. 30-feet) of slack cable shall be coiled and secured at each location. This slack is exclusive of the length of fiber that is required to accommodate termination requirements and is intended to provide for cable repair and/or equipment relocation. The cable slack shall be stored in a fashion as to protect it from damage.
6. Fiber optic cable will run from building entrance to head end and terminate on fiber patch panels.
7. All fiber cables, both active and spare, shall be terminated and tested.
8. All fiber cables shall be terminated with SC connectors.
9. All fiber strands shall be terminated in a rack-mounted enclosure provided by others.
10. All indoor fiber cables shall be installed in corrugated, Plenum, innerduct that is run in cable tray or "J" hooks.
11. Indoor fiber optic cable shall be orange in color.
12. Identify fiber every twenty feet with "fiber optic cable" warning labels.
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.
15. At the head end and all locations the fiber count will be clearly marked.

E. Labeling

1. Clearly label cables at both ends with permanently applied, mechanically printed labels. Hand written labels will not be acceptable. Use standardized colors and alphanumeric codes. Engineer will approve labeling system and method.
2. Labels shall be located within six inches of the termination.
3. Front label each fiber patch panel port.
4. All fibers with FC/APC connectors shall be reserved for Video Transmission only and shall be clearly labeled for clarification.

3.4 FIBER OPTIC TESTING

- A. Testing and documentation shall be done on all fibers with connectors. The contractor shall provide the calibration date of the unit used to perform the measurements to the district prior to beginning the test. That date must be within 12 months of test (or less if recommended by the manufacturer). Fiber loss shall be checked from connector to connector on all single mode fibers.
- B. All Fiber Optic Cable shall be tested using an Optical Time Domain Reflectometer (OTDR). Documentation for each test shall be provided to Owner. The signature trace of each cable must include the attenuation per kilometer and total length of each strand. Acceptance tests for all fiber strands shall include attenuation, attenuation

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

- C. The OTDR test results will determine the following:
1. The overall length of each segment.
 2. Proper termination.
 3. Continuity in the fiber.
 4. Total segment attenuation.
 5. Irregularities in the fiber.
 6. Loss for each strand at 1310 nm and 1550 nm.
 7. Reflectance.
- D. On the reel testing required prior to installation. Each fiber strand will be checked with an OTDR at 1310 nm to identify point discontinuities. Hard copy results are to be provided.
- E. Fusion Splice Testing - Optical fiber splice shall not exceed a maximum optical attenuation of 0.3dB when tested in accordance with ANSI/EIA/TIA 355-59.
- F. Connector Testing - Optical connectors shall not exceed a maximum optical attenuation of 0.75dB per mated connection when tested in accordance with ANSI/EIA/TIA 455-59.
- G. Reflectance Testing - Optical fiber connection between buildings shall not have a reflectance greater than -60dB per strand for video.
- H. Any cable or component that does not meet the required operational tests or fails to meet installation standards as specified shall be repaired or replaced by the contractor as directed by Southfield Public School District and at no expense to Southfield Public School District.

END OF SECTION 16710



MICHIGAN DEPARTMENT OF LABOR & ECONOMIC GROWTH
WAGE & HOUR DIVISION

OVERTIME PROVISIONS for MICHIGAN PREVAILING WAGE RATE SCHEDULE

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

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

Overtime for Monday thru Friday after 8 hours:

the 1st character is for time worked in the 9th hour (8.1 - 9 hours)

the 2nd character is for time worked in the 10th hour (9.1 - 10 hours)

the 3rd character is for time worked beyond the 10th hour (10.1 and beyond)

Overtime on Saturday:

the 4th character is for time worked in the first 8 hours on Saturday (0 - 8 hours)

the 5th character is for time worked in the 9th hour on Saturday (8.1 - 9 hours)

the 6th character is for time worked in the 10th hour (9.1 - 10 hours)

the 7th character is for time worked beyond the 10th hour (10.01 and beyond)

Overtime on Sundays & Holidays

The 8th character is for time worked on Sunday or on a holiday

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

2. Overtime Indicators Used in the Overtime Provision:

H - means TIME AND ONE-HALF due

X - means TIME AND ONE-HALF due after 40 HOURS worked

D - means DOUBLE PAY due

Y - means YES an optional 4-day 10-hour per day workweek can be worked without paying overtime after 8 hours worked

N - means NO an optional 4-day 10-hour per day workweek *can not* be worked without paying overtime after 8 hours worked

3. EXAMPLES:

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

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

State of Michigan
Department of Labor and Economic Growth

Wage and Hour Division

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Official Request 879
Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS
Project Number: BID 9336 BAKER MIDDLE SCHOOL

Oakland County
Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006
Contract must be awarded by 10/22/2006
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<u>Classification</u>		Straight	Time and	Double		
Name	Description	Hourly	a Half	Time	Overtime Provision	
=====						
Asbestos & Lead Abatement Laborer						
Asbestos & Lead Abatement Laborer	MLDC	\$30.00	\$40.28	\$50.55	H H H X X X X D Y	
Asbestos & Lead Abatement, Hazardous Material Handler						
Asbestos and Lead Abatement, Hazardous Material Handler	AS207	\$30.00	\$41.55	\$53.10	X X X X X X X D Y	
Boilermaker						
Boilermaker	BO169	\$48.71	\$68.13	\$87.54	H H D H D D D D Y	
Apprentice Rates:						
	1st 6 months	\$37.07	\$50.67	\$64.26		
	2nd 6 months	\$38.03	\$52.10	\$66.18		
	3rd 6 months	\$39.00	\$53.56	\$68.12		
	4th 6 months	\$39.97	\$55.02	\$70.06		
	5th 6 months	\$40.58	\$56.11	\$71.64		
	6th 6 months	\$42.88	\$59.38	\$75.88		
	7th 6 months	\$44.83	\$62.31	\$79.78		
	8th 6 months	\$46.77	\$65.21	\$83.66		
Bricklayer						
Bricklayer, stone mason, pointer, cleaner, caulker	BR1	\$46.06	\$69.09	\$92.12	H H D H D D D D N	
Apprentice Rates:						
	First 6 months	\$29.18	\$43.77	\$58.36		
	2nd 6 months	\$31.01	\$46.51	\$62.02		
	3rd 6 months	\$32.82	\$49.23	\$65.64		
	4th 6 months	\$34.64	\$51.96	\$69.28		
	5th 6 months	\$36.47	\$54.71	\$72.94		
	6th 6 months	\$38.28	\$57.43	\$76.56		

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Classification		Straight	Time and	Double		
Name	Description	Hourly	a Half	Time	Overtime	Provision
=====						
Carpenter						
Carpet and Resilient Floor Layer, (does not include installation of prefabricated formica & parquet flooring which is to be paid carpenter rate)	CA1045	\$40.22	\$56.42	\$72.61	H H H H D D D D N	
Apprentice Rates:						
1st 6 months		\$20.93	\$25.25	\$31.05		
2nd 6 months		\$24.02	\$31.26	\$39.07		
3rd 6 months		\$25.64	\$33.59	\$42.17		
4th 6 months		\$27.26	\$35.95	\$45.33		
5th 6 months		\$28.87	\$38.28	\$48.43		
6th 6 months		\$30.50	\$40.64	\$51.57		
7th 6 months		\$32.11	\$42.96	\$54.67		
8th 6 months		\$33.73	\$45.30	\$57.79		
Carpenter, piledriver	CA687Z1	\$44.37	\$62.97	\$81.56	H H D H D D D D Y	
Apprentice Rates:						
1st Year		\$27.63	\$37.85	\$48.08		
3rd 6 months		\$29.49	\$40.65	\$51.80		
4th 6 months		\$31.34	\$43.42	\$55.50		
5th 6 months		\$33.21	\$46.23	\$59.24		
6th 6 months		\$35.08	\$49.03	\$62.98		
7th 6 months		\$36.92	\$51.79	\$66.66		
8th 6 months		\$38.80	\$54.61	\$70.42		
Cement Mason						
Cement Mason	CE514	\$41.37	\$57.06	\$73.78	H H D H H H H D N	
Apprentice Rates:						
1st 6 months		\$23.90	\$31.75	\$40.11		
2nd 6 months		\$25.62	\$34.26	\$43.45		
3rd 6 months		\$29.06	\$39.27	\$50.13		
4th 6 months		\$32.52	\$44.30	\$56.83		
5th 6 months		\$34.24	\$46.80	\$60.17		
6th 6 months		\$37.68	\$51.81	\$66.85		
Drywall						
Drywall Taper	PT-22-D	\$37.30	\$49.70	\$62.10	H H D H D D D D N	
Apprentice Rates:						
First 3 months		\$24.90	\$31.10	\$37.30		
Second 3 months		\$27.38	\$34.82	\$42.26		
Second 6 months		\$29.86	\$38.54	\$47.22		
Third 6 months		\$32.34	\$42.26	\$52.18		
4th 6 months		\$33.58	\$44.12	\$54.66		

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

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

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<u>Classification</u>		Straight	Time and	Double		
Name	Description	Hourly	a Half	Time	Overtime	Provision
=====						
Laborer						
Construction Laborer, Mason Tender, Carpenter Tender, Drywall Handler, Cement Finisher tender, concrete chute and concrete Bucket Handler, Concrete Laborer, Demolition Laborer	L1076-A-A	\$35.36	\$50.45	\$65.53	H H D H D D D D Y	
Apprentice Rates:						
0-1,000 work hours		\$29.86	\$42.20	\$54.53		
1,001-2,000 work hours		\$30.96	\$43.85	\$56.73		
2,001-3,000 work hours		\$32.06	\$45.50	\$58.93		
3,001-4,000 work hours		\$34.26	\$48.80	\$63.33		
Signal man, air,electric or gasoline tool operator (including concrete vibrator operator),acetylene torch & air hammer operator, scaffold builder, caisson worker	L1076-A-B	\$35.62	\$50.84	\$66.05	H H D H D D D D Y	
Apprentice Rates:						
0-1,000 work hours		\$30.05	\$42.48	\$54.91		
1,001-2,000 work hours		\$31.16	\$44.15	\$57.13		
2,001-3,000 work hours		\$32.28	\$45.83	\$59.37		
3,001-4,000 work hours		\$34.51	\$49.18	\$63.83		
Lansing Burner, Blaster & Powder Man	L1076-A-C	\$36.11	\$51.57	\$67.03	H H D H D D D D Y	
Apprentice Rates:						
0-1,000 work hours		\$30.42	\$43.04	\$55.65		
1,001-2,000 work hours		\$31.56	\$44.75	\$57.93		
2,001-3,000 work hours		\$32.69	\$46.44	\$60.19		
3,001-4,000 work hours		\$34.97	\$49.86	\$64.75		
Furnance battery heater helper, burning bare & oxy- acetylene gun, expediter man, top man and/or Bottom Man (Blast Furnace Work)	L1076-A-D	\$35.86	\$51.20	\$66.53	H H D H D D D D Y	
Apprentice Rates:						
0-1,000 work hours		\$30.23	\$42.76	\$55.27		
1,001-2,000 work hours		\$31.36	\$44.45	\$57.53		
2,001-3,000 work hours		\$32.48	\$46.13	\$59.77		
3,001-4,000 work hours		\$34.73	\$49.50	\$64.27		
Cleaner/ sweeper laborer, furniture laborer	L1076-A-E	\$29.91	\$42.27	\$54.63	H H D H D D D D Y	
Plasterer Tender, Plastering Machine Operator	LPT-1	\$36.72	\$52.50	\$68.27	H H D H D D D D N	
Apprentice Rates:						
0 - 1,000 hours		\$30.87	\$43.72	\$56.57		
1,001 - 2,000 hours		\$32.04	\$45.48	\$58.91		
2,001 - 3,000 hours		\$33.21	\$47.24	\$61.25		
3,001 - 4,000 hours		\$35.55	\$50.74	\$65.93		

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Classification		Straight		Time and		Double		Overtime Provision	
Name	Description	Hourly		a Half		Time			
Laborer - Hazardous									
Class A Laborer - performing work in conjunction with site preparation and other preliminary work prior to actual removal, handling, or containment of hazardous waste substances not requiring use of personal protective equipment required by state or federal regulations; or a laborer performing work in conjunction with the removal, handling, or containment of hazardous waste substances when used of personal protective equipment level "D" is required.	LHAZ-Z2-A	\$35.36		\$50.45		\$65.53		H H H H H H D Y	
Apprentice Rates:									
	0-1,000 work hours	\$29.86		\$42.20		\$54.53			
	1,001-2,000 work hours	\$30.96		\$43.85		\$56.73			
	2,001-3,000 work hours	\$32.06		\$45.50		\$58.93			
	3,001-4,000 work hours	\$34.26		\$48.80		\$63.33			
Class B Laborer - performing work in conjunction with the removal, handling, or containment of hazardous waste substances when the use of personal protective equipment levels "A", "B" or "C" is required.	LHAZ-Z2-B	\$36.36		\$51.95		\$67.53		H H H H H H D Y	
Apprentice Rates:									
	0-1,000 work hours	\$30.60		\$43.31		\$56.01			
	1,001-2,000 work hours	\$31.76		\$45.05		\$58.33			
	2,001-3,000 work hours	\$32.91		\$46.78		\$60.63			
	3,001-4,000 work hours	\$35.21		\$50.22		\$65.23			
Laborer Underground - Tunnel, Shaft & Caisson									
Class I - Tunnel, shaft and caisson laborer, dump man, shanty man, hog house tender, testing man (on gas), and watchman.	LAUCT-Z1-1	\$31.54		\$42.13		\$52.71		H H H H H H D Y	
Apprentice Rates:									
	0-1,000 work hours	\$26.75		\$34.94		\$43.13			
	1,001-2,000 work hours	\$27.71		\$36.38		\$45.05			
	2,001-3,000 work hours	\$28.66		\$37.81		\$46.95			
	3,001-4,000 work hours	\$30.58		\$40.69		\$50.79			
Class II - Manhole, headwall, catch basin builder, bricklayer tender, mortar man, material mixer, fence erector, and guard rail builder.	LAUCT-Z1-2	\$31.65		\$42.29		\$52.93		H H H H H H D Y	
Apprentice Rates:									
	0-1,000 work hours	\$26.83		\$35.06		\$43.29			
	1,001-2,000 work hours	\$27.79		\$36.50		\$45.21			
	2,001-3,000 work hours	\$28.76		\$37.95		\$47.15			
	3,001-4,000 work hours	\$30.69		\$40.85		\$51.01			

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Class III - Air tool operator (jack hammer man, bush hammer man and grinding man), first bottom man, second bottom man, cage tender, car pusher, carrier man, concrete man, concrete form man, concrete repair man, cement invert laborer, cement finisher, concrete shoveler, conveyor man, floor man, gasoline and electric tool operator, gunnite man, grout operator, welder, heading dinky man, inside lock tender, pea gravel operator, pump man, outside lock tender, scaffold man, top signal man, switch man, track man, tugger man, utility man, vibrator man, winch operator, pipe jacking man, wagon drill and air track operator and concrete saw operator (under 40 h.p.).	LAUCT-Z1-3	\$31.71	\$42.38	\$53.05	H H H H H H H D Y
Apprentice Rates:					
0-1,000 work hours		\$26.87	\$35.12	\$43.37	
1,001-2,000 work hours		\$27.84	\$36.57	\$45.31	
2,001-3,000 work hours		\$28.81	\$38.03	\$47.25	
3,001-4,000 work hours		\$30.74	\$40.93	\$51.11	
Class IV - Tunnel, shaft and caisson mucker, bracer man, liner plate man, long haul dinky driver and well point man.	LAUCT-Z1-4	\$31.89	\$42.65	\$53.41	H H H H H H H D Y
Apprentice Rates:					
0-1,000 work hours		\$27.01	\$35.33	\$43.65	
1,001-2,000 work hours		\$27.99	\$36.80	\$45.61	
2,001-3,000 work hours		\$28.96	\$38.25	\$47.55	
3,001-4,000 work hours		\$30.91	\$41.18	\$51.45	
Class V - Tunnel, shaft and caisson miner, drill runner, keyboard operator, power knife operator, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars)	LAUCT-Z1-5	\$32.14	\$43.03	\$53.91	H H H H H H H D Y
Apprentice Rates:					
0-1,000 work hours		\$27.20	\$35.61	\$44.03	
1,001-2,000 work hours		\$28.19	\$37.10	\$46.01	
2,001-3,000 work hours		\$29.17	\$38.57	\$47.97	
3,001-4,000 work hours		\$31.15	\$41.54	\$51.93	
Class VI - Dynamite man and powder man.	LAUCT-Z1-6	\$32.47	\$43.52	\$54.57	H H H H H H H D Y
Apprentice Rates:					
0-1,000 work hours		\$27.45	\$35.99	\$44.53	
1,001-2,000 work hours		\$28.45	\$37.49	\$46.53	
2,001-3,000 work hours		\$29.45	\$38.99	\$48.53	
3,001-4,000 work hours		\$31.47	\$42.02	\$52.57	

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Name	Description					
=====						
Class VII - Restoration laborer, seeding, sodding, planting, cutting, mulching and topsoil grading and the restoration of property such as replacing mail boxes, wood chips, planter boxes and flagstones.		LAUCT-Z1-7	\$25.75	\$33.44	\$41.13	H H H H H H D Y
Apprentice Rates:						
0-1,000 work hours		\$22.41	\$28.43	\$34.45		
1,001-2,000 work hours		\$23.07	\$29.42	\$35.77		
2,001-3,000 work hours		\$23.74	\$30.43	\$37.11		
3,001-4,000 work hours		\$25.08	\$32.43	\$39.79		
Landscape Laborer						
Landscape specialist includes; air, gas, and diesel equipment operator, lawn sprinkler installer.		LLAN-Z1-A	\$22.38	\$31.04	\$39.69	X X H X X X H D Y
Landscape laborer; small power tool operator, lawn sprinkler installer helper, material mover, truck driver.		LLAN-Z1-B	\$18.16	\$24.71	\$31.25	X X H X X X H D Y
Marble Finisher						
Marble Finisher		TT32-MF	\$37.17	\$46.87	\$56.57	H H D H D D D D N
Apprentice Rates:						
Level 1		\$18.16	\$23.25	\$28.35		
Level 2		\$19.18	\$24.79	\$30.39		
Level 3		\$23.19	\$29.47	\$35.75		
Level 4		\$24.45	\$31.36	\$38.27		
Level 5		\$25.74	\$32.85	\$39.97		
Level 6		\$27.13	\$34.62	\$42.10		
Level 7		\$28.57	\$36.10	\$43.63		
Level 8		\$29.85	\$37.62	\$45.40		
Marble Mason						
Marble Mason		TT32-MM	\$42.76	\$55.51	\$68.25	H H D H D D D D N
Apprentice Rates:						
Level 1		\$23.56	\$30.36	\$37.16		
Level 2		\$26.21	\$33.74	\$41.28		
Level 3		\$28.90	\$36.71	\$44.51		
Level 4		\$31.20	\$39.83	\$48.46		
Level 5		\$33.26	\$42.19	\$51.12		
Level 6		\$36.52	\$47.03	\$57.53		
Level 7		\$37.33	\$48.11	\$58.89		
Level 8		\$38.14	\$49.33	\$60.51		
Operating Engineer						
Crane with boom & jib or leads 120' or longer		EN-324-A120	\$46.38	\$62.48	\$78.57	H H D H D D D D Y

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Name	Description				
Crane with boom & jib or leads 140' or longer	EN-324-A140	\$47.20	\$63.71	\$80.21	H H D H D D D D Y
Crane with boom & jib or leads 220' or longer	EN-324-A220	\$47.50	\$64.16	\$80.81	H H D H D D D D Y
Crane with boom & jib or leads 300' or longer	EN-324-A300	\$49.00	\$70.03	\$91.06	H H D H D D D D Y
Crane with boom & jib or leads 400' or longer	EN-324-A400	\$50.50	\$68.66	\$86.81	H H D H D D D D Y
Compressor or welding machine	EN-324-CW	\$35.53	\$46.20	\$56.87	H H D H D D D D Y
Forklift, lull, extend-a-boom forklift	EN-324-FL	\$42.84	\$57.17	\$71.49	H H D H D D D D Y
Fireman or oiler	EN-324-FO	\$34.50	\$44.66	\$54.81	H H D H D D D D Y
Regular crane, job mechanic, concrete pump	EN-324-RC	\$45.52	\$61.19	\$76.85	H H D H D D D D Y
Regular engineer	EN-324-RE	\$44.55	\$59.73	\$74.91	H H D H D D D D Y
Apprentice Rates:					
	Period 1	\$34.99	\$45.62	\$56.24	
	Period 2	\$36.51	\$47.90	\$59.28	
	Period 3	\$38.03	\$50.18	\$62.32	
	Period 4	\$39.55	\$52.46	\$65.36	
	Period 5	\$41.06	\$54.72	\$68.38	
	Period 6	\$42.58	\$57.00	\$71.42	

Operating Engineer - Marine Construction

Diver/Wet Tender, Engineer (hydraulic dredge) GLF-1 \$47.11 \$61.89 \$76.66 X X H H H H H D Y

Holidays paid at \$91.44 per hour

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

Crane/Backhoe Operator, Mechanic/Welder, Assistant GLF-2 \$45.61 \$59.64 \$73.66 X X H H H H H D Y
Engineer (hydraulic dredge), Leverman (hydraulic dredge),
Diver Tender

Holidays paid \$87.69 per hour

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

Deck Equipment Operator, Machineryman, Maintenance of GLF-3 \$42.56 \$55.06 \$67.56 X X H H H H H D Y
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

Holidays paid at \$80.06 per hour

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Statewide

Official Rate Schedule

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

Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

Contract must be awarded by 10/22/2006

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Classification					
Name	Description	Straight Hourly	Time and a Half	Double Time	Overtime Provision

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

Deck Equipment Operator, (Machineryman/Fireman), (4 equipment units or more), Deck Hand, Deck Engineer, & Crane Maintenance 50 ton capacity and under or Backhoe weighing 115,000 lbs or less, Assistant Tug Operator	GLF-4	\$38.36	\$48.76	\$59.16	X X H H H H H D Y
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Holidays paid at \$69.56 per hour

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

Operating Engineer Hazardous Waste Class I

Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWCI-Z1A	\$44.87	\$60.16	\$75.50	H H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$35.20	\$45.96	\$56.71
2nd 6 months	\$36.74	\$48.27	\$59.79
3rd 6 months	\$38.28	\$50.58	\$62.87
4th 6 months	\$39.81	\$52.87	\$65.93
5th 6 months	\$41.35	\$55.19	\$69.01
6th 6 months	\$42.88	\$57.48	\$72.07

Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HWCI-Z1B	\$43.91	\$58.80	\$73.69	H H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$34.53	\$44.95	\$55.37
2nd 6 months	\$36.02	\$47.19	\$58.35
3rd 6 months	\$37.51	\$49.42	\$61.33
4th 6 months	\$39.00	\$51.66	\$64.31
5th 6 months	\$40.49	\$53.89	\$67.29
6th 6 months	\$41.98	\$56.13	\$70.27

Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCI-Z1D	\$42.61	\$56.85	\$71.09	H H H H H H H D Y
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Apprentice Rates:

1st 6 months	\$33.62	\$43.59	\$53.55
2nd 6 months	\$35.05	\$45.74	\$56.41
3rd 6 months	\$36.47	\$47.87	\$59.25
4th 6 months	\$37.90	\$50.01	\$62.11
5th 6 months	\$39.31	\$52.12	\$64.93
6th 6 months	\$40.74	\$54.27	\$67.79

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

Contract must be awarded by 10/22/2006

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1DCL	\$42.36	\$56.47	\$70.58	H H H H H H D Y
Apprentice Rates:					
1st 6 months		\$33.45	\$43.33	\$53.21	
2nd 6 months		\$34.85	\$45.43	\$56.01	
3rd 6 months		\$36.26	\$47.54	\$58.83	
4th 6 months		\$37.68	\$49.68	\$61.67	
5th 6 months		\$39.09	\$51.80	\$64.49	
6th 6 months		\$40.50	\$53.90	\$67.31	
Operating Engineer Hazardous Waste Class II					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWCII-Z1A	\$40.64	\$53.88	\$67.13	H H H H H H D Y
Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HWCII-Z1B	\$39.68	\$52.45	\$65.22	H H H H H H D Y
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1D	\$38.38	\$50.50	\$62.62	H H H H H H D Y
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWCII-Z1DCL	\$38.14	\$50.13	\$62.12	H H H H H H D Y
Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 140' or longer					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HW140-Z1A	\$47.51	\$64.14	\$80.80	H H H H H H D Y
Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HW140-Z1B	\$46.57	\$62.79	\$79.00	H H H H H H D Y
Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW140-Z1D	\$45.27	\$60.84	\$76.40	H H H H H H D Y
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW140-Z1DCL	\$45.02	\$59.71	\$75.15	H H H H H H D Y

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

Contract must be awarded by 10/22/2006

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
=====					
Operating Engineer Hazardous Waste Crane w/ Boom & Jib leads 220' or longer					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HW220-Z1A	\$47.81	\$64.65	\$81.48	H H H H H H D Y
Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HW220-Z1B	\$46.87	\$63.23	\$79.60	H H H H H H D Y
Level D Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW220-Z1D	\$45.57	\$61.28	\$77.00	H H H H H H D Y
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HW220-Z1DCL	\$45.32	\$60.90	\$76.49	H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, and Concrete Pump with Boom Operator					
Level D - Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1D	\$43.58	\$58.30	\$73.02	H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with boom					
Level D When Capping Landfill Coveralls, safety boots, glasses or chemical splash goggles and hard hats.	EN-324-HWRC-Z1DCL	\$42.72	\$57.01	\$71.30	H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operator and Concrete Pump with booms					
Level B & C protection. B - Pressure demand, full face SCBA or pressure demand supplied air respirator w/ escape SCBA w/chemical resistant clothing. C - Full face piece, air purifying canister-equipped respirator w/chemical resistant clothing.	EN-324-HWRC-Z1B	\$44.88	\$60.25	\$75.62	H H H H H H D Y
Operating Engineer Hazardous Waste Regular Crane, Job Mechanic, Dragline Operator, Boom Truck Operator, Power Shovel Operators and Concrete Pump with booms					
Level A - Fully encapsulating chemical resistant suit w/ pressure demand, full face piece SCBA or pressure demand supplied air respirator w/ escape SCBA. The highest available level of respiratory, skin and eye protection.	EN-324-HWRC-Z1A	\$45.83	\$61.68	\$77.53	H H H H H H D Y
Operating Engineer Steel Work					
Crane w/ 120' boom or longer	EN-324-SW120	\$49.38	\$66.98	\$84.57	H H D H H H D Y

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Crane w/ 120' boom or longer w/ Oiler	EN-324-SW120-O	\$50.38	\$68.48	\$86.57	H H D H H H D D Y
Crane w/ 140' boom or longer	EN-324-SW140	\$50.56	\$68.75	\$86.93	H H D H H H D D Y
Crane w/ 140' boom or longer W/ Oiler	EN-324-SW140-O	\$51.56	\$70.25	\$88.93	H H D H H H D D Y
Boom & Jib 220' or longer	EN-324-SW220	\$50.83	\$69.15	\$87.47	H H D H H H D D Y
Crane w/ 220' boom or longer w/ Oiler	EN-324-SW220-O	\$51.83	\$70.65	\$89.47	H H D H H H D D Y
Boom & Jib 300' or longer	EN-324-SW300	\$52.33	\$71.40	\$90.47	H H D H H H D D Y
Crane w/ 300' boom or longer w/ Oiler	EN-324-SW300-O	\$53.33	\$72.90	\$92.47	H H D H H H D D Y
Boom & Jib 400' or longer	EN-324-SW400	\$53.83	\$73.65	\$93.47	H H D H H H D D Y
Crane w/ 400' boom or longer w/ Oiler	EN-324-SW400-O	\$54.83	\$75.15	\$95.47	H H D H H H D D Y
Crane Operator & Job Mechanic	EN-324-SWCO	\$49.02	\$66.44	\$83.85	H H D H H H D D Y
Apprentice Rates:					
0-999 hours		\$38.12	\$50.31	\$62.50	
1,000-1,999 hours		\$39.87	\$56.14	\$72.40	
2,000-2,999 hours		\$41.60	\$55.53	\$69.46	
3,000-3,999 hours		\$43.35	\$58.15	\$72.96	
4,000-4,999 hours		\$45.09	\$60.77	\$76.44	
5,000 hours		\$46.84	\$63.39	\$79.94	
Crane w/ Oiler	EN-324-SWCO-O	\$50.02	\$67.94	\$85.85	H H D H H H D D Y
Compressor or Welder Operator	EN-324-SWCW	\$41.57	\$55.26	\$68.95	H H D H H H D D Y
Hoisting Operator	EN-324-SWHO	\$48.38	\$65.48	\$82.57	H H D H H H D D Y
Oiler	EN-324-SWO	\$40.16	\$53.15	\$66.13	H H D H H H D D Y
Tower Crane & Derrick where work is 50' or more above first level	EN-324-SWTD50	\$50.11	\$68.07	\$86.03	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	\$51.11	\$69.57	\$88.03	H H D H H H D D Y

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

Contract must be awarded by 10/22/2006

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
=====					
Operating Engineer Underground					
Class I Equipment	EN-324A1-UC1	\$42.37	\$56.45	\$70.54	H H H H H H D Y
	Apprentice Rates:				
	0-999 hours	\$33.46	\$43.32	\$53.18	
	1,000-1,999 hours	\$34.88	\$45.45	\$56.02	
	2,000-2,999 hours	\$36.28	\$47.55	\$58.82	
	3,000-3,999 hours	\$37.68	\$49.65	\$61.62	
	4,000-4,999 hours	\$39.10	\$51.79	\$64.46	
	5,000-5,999 hours	\$40.51	\$53.90	\$67.28	
Class II Equipment	EN-324A1-UC2	\$37.89	\$49.74	\$61.59	H H H H H H D Y
Class III Equipment	EN-324A1-UC3	\$37.16	\$48.64	\$60.12	H H H H H H D Y
Class IV Equipment	EN-324A1-UC4	\$36.59	\$47.79	\$58.99	H H H H H H D Y
Master Mechanic	EN-324A1-UMM	\$42.62	\$56.83	\$71.05	H H H H H H D Y
Painter					
Painter (8 hours of repaint work performed on Sunday shall be paid time & one half rate)	PT-22-P	\$38.01	\$50.24	\$62.47	H H D H D D D N
	Apprentice Rates:				
	First 6 months	\$25.78	\$31.89	\$38.01	
	Second 6 months	\$29.45	\$37.40	\$45.35	
	Third 6 months	\$30.67	\$39.23	\$47.79	
	Fourth 6 months	\$31.89	\$41.06	\$50.23	
	Fifth 6 months	\$33.12	\$42.91	\$52.69	
	Final 6 months	\$34.34	\$44.73	\$55.13	
Sandblasting & spraywork performed, on highway bridges, overpasses, tanks or steel, OR spraywork & sandblasting done with a scaffold height of 40' above the floor level	PT-22-S	\$38.81	\$51.44	\$64.07	H H D H D D D N

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

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<u>Classification</u>		Straight	Time and	Double		
Name	Description	Hourly	a Half	Time	Overtime	Provision
Pipefitter						
Pipefitter	PF-636	\$51.46	\$66.44	\$81.41	H H D H D D D D N	
	Apprentice Rates:					
	1st & 2nd periods	\$26.23	\$33.23	\$40.23		
	3rd period	\$28.23	\$36.23	\$44.23		
	4th period	\$29.48	\$38.11	\$46.73		
	5th period	\$30.73	\$39.98	\$49.23		
	6th period	\$31.98	\$41.85	\$51.73		
	7th period	\$33.23	\$43.73	\$54.23		
	8th period	\$34.23	\$45.23	\$56.23		
	9th period	\$35.23	\$46.73	\$58.23		
	10th period	\$36.66	\$48.87	\$61.09		
Plasterer						
Plasterer	BR1P	\$40.97	\$61.46	\$81.94	H H H H H H H D N	
	Apprentice Rates:					
	1st 6 months	\$20.77	\$31.16	\$41.54		
	2nd 6 months	\$24.16	\$36.24	\$48.32		
	3rd 6 months	\$27.52	\$41.28	\$55.04		
	4th 6 months	\$30.88	\$46.32	\$61.76		
	5th 6 months	\$34.25	\$49.58	\$66.10		
	6th 6 months	\$37.61	\$56.42	\$75.22		
Plasterer	PL67	\$38.32	\$52.78	\$67.24	H H H X D D D D N	
	Apprentice Rates:					
	1st 6 months	\$20.97	\$26.76	\$32.54		
	2nd 6 months	\$23.86	\$31.09	\$38.32		
	3rd 6 months	\$26.75	\$35.42	\$44.10		
	4th 6 months	\$29.64	\$39.76	\$49.88		
	5th 6 months	\$32.54	\$44.11	\$55.68		
	6th 6 months	\$35.43	\$48.44	\$61.46		

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

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Classification		Straight		Time and		Double		Overtime Provision	
Name	Description	Hourly		a Half		Time			
Plumber									
Plumber	PL-98	\$49.58		\$67.10		\$82.61	H H D H D D D D Y		
	Apprentice Rates:								
	Period 1	\$18.11		\$25.11		\$32.11			
	Period 2	\$20.30		\$28.39		\$36.49			
	Period 3	\$30.47		\$40.85		\$50.13			
	Period 4	\$31.16		\$41.89		\$51.51			
	Period 5	\$32.45		\$43.83		\$54.09			
	Period 6	\$33.73		\$45.75		\$56.65			
	Period 7	\$35.01		\$47.67		\$59.21			
	Period 8	\$36.31		\$49.61		\$61.81			
	Period 9	\$37.59		\$51.53		\$64.37			
	Period 10	\$38.87		\$53.45		\$66.93			
Roofer									
Commercial Roofer	RO-149-WOM	\$43.36		\$56.74		\$70.12	H H D H H H D D N		
	Apprentice Rates:								
	Apprentice 1	\$32.12		\$39.88		\$47.64			
	Apprentice 2	\$32.56		\$40.54		\$48.52			
	Apprentice 3	\$33.87		\$42.50		\$51.14			
	Apprentice 4	\$34.83		\$43.94		\$53.06			
	Apprentice 5	\$35.96		\$45.64		\$55.32			
	Apprentice 6	\$37.25		\$47.58		\$57.90			
Sheet Metal Worker									
Sheet Metal Worker	SHM-80	\$51.82		\$69.04		\$86.25	H H D H D D D D Y		
	Apprentice Rates:								
	First Year	\$34.61		\$43.22		\$51.83			
	Second Year	\$35.98		\$45.27		\$54.57			
	Third Year	\$37.36		\$47.34		\$57.33			
	Fourth Year	\$40.11		\$51.47		\$62.83			
	Fifth Year	\$42.86		\$55.59		\$68.33			
Siding & Decking	SHM-80-SD	\$34.58		\$46.03		\$57.48	H H H H H H H D Y		

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

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Classification		Straight		Time and		Double		Overtime Provision	
Name	Description	Hourly		a Half		Time			
Sound & Communication									
Installer/Technician	EC-58-SC	\$29.33		\$41.30		\$53.26	H H H H H H D N		
	Apprentice Rates:								
	Period 1	\$17.16		\$23.04		\$28.93			
	Period 2	\$18.38		\$24.88		\$31.37			
	Period 3	\$19.59		\$26.69		\$33.79			
	Period 4	\$20.81		\$28.53		\$36.23			
	Period 5	\$22.02		\$30.33		\$38.65			
	Period 6	\$23.24		\$32.17		\$41.09			
Sprinkler Fitter									
Sprinkler Fitter	SP 704	\$52.17		\$70.51		\$88.85	H H D H D D D D Y		
	Apprentice Rates:								
	1st Period	\$21.82		\$29.16		\$36.50			
	2nd Period	\$32.00		\$40.25		\$48.51			
	3rd Period	\$33.83		\$43.00		\$52.17			
	4th Period	\$35.67		\$45.76		\$55.85			
	5th Period	\$37.50		\$48.51		\$59.51			
	6th Period	\$39.34		\$51.27		\$63.19			
	7th Period	\$41.17		\$54.01		\$66.85			
	8th Period	\$43.00		\$56.75		\$70.51			
	9th Period	\$44.84		\$59.51		\$74.19			
	10th Period	\$46.67		\$62.26		\$77.85			
Terrazzo									
Terrazzo Finisher	TT32-TRF	\$37.57		\$47.47		\$57.37	H H D H D D D D N		
	Apprentice Rates:								
	Level 1	\$19.15		\$24.74		\$30.33			
	Level 2	\$19.78		\$25.69		\$31.59			
	Level 3	\$12.49		\$18.74		\$24.98			
	Level 4	\$24.38		\$31.25		\$38.13			
	Level 5	\$25.67		\$32.75		\$39.83			
	Level 6	\$27.56		\$35.09		\$42.62			
	Level 7	\$28.50		\$36.12		\$43.74			
	Level 8	\$29.78		\$37.65		\$45.51			

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

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Classification		Straight Hourly	Time and a Half	Double Time	Overtime Provision
Name	Description				
Terrazzo Worker	TT32-TRW	\$42.29	\$54.80	\$67.31	H H D H D D D D N
	Apprentice Rates:				
	Level 1	\$23.46	\$30.21	\$36.96	
	Level 2	\$26.11	\$33.60	\$41.08	
	Level 3	\$28.80	\$36.55	\$44.31	
	Level 4	\$31.10	\$39.68	\$48.26	
	Level 5	\$33.16	\$42.17	\$51.17	
	Level 6	\$36.34	\$46.75	\$57.17	
	Level 7	\$37.40	\$48.21	\$59.03	
	Level 8	\$38.21	\$49.43	\$60.65	
Tile Finisher	TT32-TF	\$37.19	\$46.90	\$56.61	H H D H D D D D N
	Apprentice Rates:				
	Level 1	\$18.06	\$23.11	\$28.15	
	Level 2	\$19.08	\$24.63	\$30.19	
	Level 3	\$23.09	\$29.32	\$35.55	
	Level 4	\$24.35	\$31.21	\$38.07	
	Level 5	\$25.64	\$32.71	\$39.77	
	Level 6	\$27.03	\$34.46	\$41.90	
	Level 7	\$28.47	\$35.95	\$43.43	
	Level 8	\$29.75	\$37.48	\$45.20	
Tile Layer	TT32-TL	\$42.19	\$54.65	\$67.11	H H D H D D D D N
	Apprentice Rates:				
	Level 1	\$23.46	\$30.21	\$36.96	
	Level 2	\$26.11	\$33.60	\$41.08	
	Level 3	\$28.80	\$36.55	\$44.31	
	Level 4	\$31.10	\$39.68	\$48.26	
	Level 5	\$33.11	\$41.96	\$50.82	
	Level 6	\$36.29	\$46.68	\$57.07	
	Level 7	\$36.85	\$47.39	\$57.93	
	Level 8	\$37.66	\$48.61	\$59.55	
Truck Driver					
on all trucks of 8 cubic yard capacity or less	TM-RB1	\$32.62	\$35.55		H H H H H H H Y
of all trucks of 8 cubic yard capacity or over	TM-RB1A	\$32.72	\$35.70		H H H H H H H Y
on euclid type equipment	TM-RB1B	\$32.87	\$35.93		H H H H H H H Y

Official Request #: 879

Requestor: TROY SCHOOL DISTRICT

Project Description: WAN RENOVATIONS

Project Number: BID 9336 BAKER MIDDLE SCHOOL

County: Oakland

Official Rate Schedule

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

Official 2006 Prevailing Wage Rates for State Funded Projects

Issue Date: 7/24/2006

Contract must be awarded by 10/22/2006

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Classification		Straight	Time and	Double		
Name	Description	Hourly	a Half	Time	Overtime Provision	
=====						
Underground Laborer Open Cut, Class I						
Construction Laborer	LAUC-Z1-1	\$31.39	\$41.90	\$52.41	H H H H H H D Y	
Apprentice Rates:						
0-1,000 work hours		\$26.63	\$34.76	\$42.89		
1,001-2,000 work hours		\$27.59	\$36.20	\$44.81		
2,001-3,000 work hours		\$28.54	\$37.63	\$46.71		
3,001-4,000 work hours		\$30.44	\$40.47	\$50.51		
Underground Laborer Open Cut, Class II						
Mortar and material mixer, concrete form man, signal man, well point man, manhole, headwall and catch basin builder, guard rail builders, headwall, seawall, breakwall, dock builder and fence erector.	LAUC-Z1-2	\$31.50	\$42.07	\$52.63	H H H H H H D Y	
Apprentice Rates:						
0-1,000 work hours		\$26.72	\$34.89	\$43.07		
1,001-2,000 work hours		\$27.67	\$36.32	\$44.97		
2,001-3,000 work hours		\$28.63	\$37.76	\$46.89		
3,001-4,000 work hours		\$30.54	\$40.63	\$50.71		
Underground Laborer Open Cut, Class III						
Air, gasoline and electric tool operator, vibrator operator, drillers, pump man, tar kettle operator, bracers, rodger, reinforced steel or mesh man (e.g. wire mesh, steel mats, dowel bars, etc.), cement finisher, welder, pipe jacking and boring man, wagon drill and air track operator and concrete saw operator (under 40 h.p.), windlass and tugger man, and directional boring man.	LAUC-Z1-3	\$31.55	\$42.14	\$52.73	H H H H H H D Y	
Apprentice Rates:						
0-1,000 work hours		\$26.75	\$34.94	\$43.13		
1,001-2,000 work hours		\$27.71	\$36.38	\$45.05		
2,001-3,000 work hours		\$28.67	\$37.82	\$46.97		
3,001-4,000 work hours		\$30.59	\$40.70	\$50.81		
Underground Laborer Open Cut, Class IV						
Trench or excavating grade man.	LAUC-Z1-4	\$31.63	\$42.26	\$52.89	H H H H H H D Y	
Apprentice Rates:						
0-1,000 work hours		\$26.81	\$35.03	\$43.25		
1,001-2,000 work hours		\$27.78	\$36.49	\$45.19		
2,001-3,000 work hours		\$28.74	\$37.93	\$47.11		
3,001-4,000 work hours		\$30.67	\$40.82	\$50.97		

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Page 20 of 20

Classification			Straight	Time and	Double		
Name	Description		Hourly	a Half	Time	Overtime	Provision
=====							
Underground Laborer Open Cut, Class V							
Pipe Layer	LAUC-Z1-5		\$31.69	\$42.35	\$53.01	H H H H H H D Y	
	Apprentice Rates:						
	0-1,000 work hours		\$26.86	\$35.11	\$43.35		
	1,001-2,000 work hours		\$27.83	\$36.56	\$45.29		
	2,001-3,000 work hours		\$28.79	\$38.00	\$47.21		
	3,001-4,000 work hours		\$30.72	\$40.89	\$51.07		
Underground Laborer Open Cut, Class VI							
Grouting man, top man assistant, audio visual television	LAUC-Z1-6		\$29.14	\$38.53	\$47.91	H H H H H H D Y	
operations and all other operations in connection with							
closed circuit television inspection, pipe cleaning and pipe							
relining work.							
	Apprentice Rates:						
	0-1,000 work hours		\$24.95	\$32.24	\$39.53		
	1,001-2,000 work hours		\$25.79	\$33.50	\$41.21		
	2,001-3,000 work hours		\$26.62	\$34.75	\$42.87		
	3,001-4,000 work hours		\$28.30	\$37.27	\$46.23		
Underground Laborer Open Cut, Class VII							
Restoration laborer, seeding, sodding, planting, cutting,	LAUC-Z1-7		\$25.76	\$33.46	\$41.15	H H H H H H D Y	
mulching and topsoil grading and the restoration of							
property such as replacing mail boxes, wood chips, planter							
boxes, flagstones etc.							
	Apprentice Rates:						
	0-1,000 work hours		\$22.41	\$28.43	\$34.45		
	1,001-2,000 work hours		\$23.08	\$29.43	\$35.79		
	2,001-3,000 work hours		\$23.75	\$30.44	\$37.13		
	3,001-4,000 work hours		\$25.09	\$32.45	\$39.81		

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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.



STATE OF MICHIGAN

JENNIFER M. GRANHOLM
GOVERNOR

DEPARTMENT OF LABOR & ECONOMIC GROWTH
LANSING

DAVID C. HOLLISTER
DIRECTOR

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

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

State of Michigan responsibilities under the law:

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

Contracting agent responsibilities under the law:

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

Contractor responsibilities under the law:

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

Enforcement:

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

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

WAGE & HOUR DIVISION

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

Revised 02/20/2004

www.michigan.gov/wagehour • (517) 322-1825 • FAX (517) 322-6352

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.
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), Sweeper (Wayne type and similar equipment), Tractor (pneu-tired, other than backhoe or front end loader), Trencher (8' digging capacity and smaller).
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 Remove, Vibrating Compaction Equipment (6' wide or over), Trencher (service).

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, Crane Crusher, Dozer, Elevating Grader, Endloader, Farm Tractor (90 h.p. and higher), Gradall, Grader, Heavy Equipment Robotics Operator, Loader, Pug Mill, Pumpcrete Machines, Pump Trucks, Roller, Scraper (self-propelled or tractor drawn), Side Boom Tractor, Slip Form Paver, Slop Paver, Trencher, Ultra High Pressure Waterjet Cutting Tool System Operator, Vactors, Vacuum Blasting Machine Operator, Vertical Lifting Hoist, Vibrating Compaction Equipment (self-propelled), and Well Drilling Rig.
CLASS II	Air Compressor, Concrete Breaker when not attached to hoe, Elevator, End Dumps, Equipment Decontamination Operator, Farm Tractor (less than 90 h.p.), Forklift, Generator, Heater, Mulcher, Pigs (Portable Reagent Storage Tanks), Power Screens, Pumps (water), Stationary Compressed Air Plant, Sweeper, and Welding Machine.

TROY SCHOOL DISTRICT
Bid 9336 Troy WAN Renovations

	<u>Western Tel-Com</u>	<u>Turn-Key Network</u>
Base Bid	21,927.00	41,300.00
Bid Bond	yes	yes
Familial Disclosure Statement	yes	yes