SPECIFICATIONS

FOR

WABASH VALLEY HEALTH CENTER, INC.
1436 LOCUST STREET
TERRE HAUTE, INDIANA 47807

BUILDING ADDITIONS & RENOVATIONS

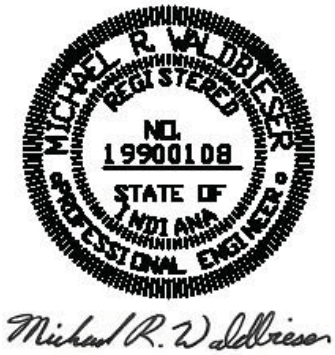
MICHAEL R. WALDBIESER

ENGINEERING & CONSULTING, INC.

STRUCTURAL, PLUMBING, MECHANICAL, & ELECTRICAL DESIGN

SYCAMORE BUILDING
19 SOUTH 6th STREET, SUITE 804
TERRE HAUTE, INDIANA 47807

PHONE: (812) 232-6510
FAX: (812) 232-7098



SET NO. _____

September 11, 2019

INDEX

NOTICE TO BIDDERS
WABASH VALLEY HEALTH CENTER, INC.
BUILDING ADDITIONS & RENOVATIONS
1436 LOCUST STREET, TERRE HAUTE, INDIANA 47807

Notice is hereby given that sealed bids will be received

By:	Hannig Construction, Inc. 815 Swan Street Terre Haute, Indiana 47807
For:	Wabash Valley Health Center, Inc. Building Additions & Renovations 1436 Locust Street Terre Haute, Indiana 47807
At:	Hannig Construction, Inc. 815 Swan Street Terre Haute, Indiana 47807
Until:	2:00 p.m. local time Tuesday October 8th, 2019 Bids received after that time will be returned unopened.
Bid opening:	Bids will be privatley opened.
Bid Documents:	Bid documents will be available for distribution on September 16, 2019
Pre-Bid Meeting:	Wednesday September 25th, 2019 10:00 AM local lime Wabash Valley Health Center, Inc. 1436 Locust Street 2nd Floor Conference Room Terre Haute, Indiana 47807

Hannig Construction, Inc. will receive sealed bids for bid packages as directed by Hannig Construction, Inc. and/or listed in the contract documents. All work associated with the Scope of Work as indicated on Drawing #1820-C6 shall be bid as a separate project from the remainder of work on the project due to Grant Funding Source from the City of Terre Haute Department of Redevelopment. All contracts for work on this project will be between Sub-Contractors/Suppliers and Hannig Construction, Inc. A separate contract will be between the Owner and Hannig Construction, Inc. General Conditions for all Contracts will be as directed in the AGC Contract between the Owner and Hannig Construction, Inc.

NOTICE TO BIDDERS
WABASH VALLEY HEALTH CENTER, INC.
BUILDING ADDITIONS & RENOVATIONS
1436 LOCUST STREET, TERRE HAUTE, INDIANA 47807

Bids shall be executed on the forms provided. Bids shall be delivered in a sealed opaque envelope showing the Bidder's name, address, and marked :

Wabash Valley Health Center, Inc.
Building Additions & Renovations
1436 Locust Street
Terre Haute, Indiana 47807

Each bid proposal shall include all labor, material, and services necessary to complete the portion of the project in the indicated bid package in strict accordance with the drawings and specifications as prepared and on file in the offices of:

The Engineer: Michael R. Waldbieser
Engineering and Consulting, Inc.
Sycamore Building
19 S. Sixth Street, Suite 804
Terre Haute, Indiana 47807
Phone: (812) 232-6510

Plan Room: Rapid Reproductions, Inc.
129 South 11th Street
Terre Haute, Indiana 47807
Phone: (812) 238-1681
Copies may be purchased from Rapid Reproductions.

Electronic copies of the bidding documents, in pdf format, may be obtained by contacting Mr. Michael R. Waldbieser at (812) 232-6510. Copies may be purchased from Rapid Reproductions, Inc. (812) 238-1681.

Bidder shall provide pricing for base and alternate scopes of work as identified in project specifications and construction drawings for the construction of the Building Additions & Renovations located at 1436 Locust Street, Terre Haute, Indiana 47807.

Bids shall be properly and completely executed in accordance with the instructions and supplementary instructions to bidders and shall be submitted on the attached Bid Form contained in the bidding documents.

NOTICE TO BIDDERS
WABASH VALLEY HEALTH CENTER, INC.
BUILDING ADDITIONS & RENOVATIONS
1436 LOCUST STREET, TERRE HAUTE, INDIANA 47807

Bid Bond is not required
Performance & Payment Bond is not required
Certified Payroll is required for Scope of Work Shown on Drawing #1820-C6

Other required documents to be submitted with the bid include the following:
Section 00300 – Bid Form attached to Bid Documents

Pending approval of the project by Wabash Valley Health Center, Inc., it is the intent of the Wabash Valley Health Center, Inc. to award the contract based on the bid prices received and the funds available for the project. However, the Owner may accept the lowest responsible and responsive bid; accept the lowest responsible and responsive bid for the base bid plus any or all alternate(s), or reject all bids. The contract will not necessarily be awarded to the lowest responsible and responsive bidder on the base bid alone.

The successful bidder will be required to furnish insurance covering Workmen's Compensation, Public Liability, and Property Damage and any other which may be required, before the contract can be signed and issued.

Indiana State Gross Retail and Use Tax **shall not** be included in the Bid Price, as Wabash Valley Health Center, Inc. is tax **exempt**. The provision shall apply both to transactions between Wabash Valley Health Center, Inc. and the Contractor, the Contractor and any Subcontractors, and to transactions between the material suppliers and the Contractor.

The Owner reserves the right to waive any and all formalities and informalities or to reject any and all bids. The Owner shall accept bids which, in his judgement, are in his own best interests. Bids received after the time set to receive bids shall be returned unopened.

Items Below Required for Scope of Work indicated on Drawing #1820-C6.

Pursuant to Indiana law, effective January 1, 2017, all contractors and sub-contractors must be pre-qualified with the Indiana Public Works Certification Board under I.C. 4-13.6-4 prior to starting work on any local public works project over $300,000.

All bids must be accompanied by a written plan for a program to test the contractor's employees for drugs which complies with the requirements of Indiana Code 4-13-18. A contractor whose bid does not include a written plan for an employee drug testing program that complies with Indiana Code 4-13-18 will not be awarded the contract.

NOTICE TO BIDDERS
WABASH VALLEY HEALTH CENTER, INC.
BUILDING ADDITIONS & RENOVATIONS
1436 LOCUST STREET, TERRE HAUTE, INDIANA 47807

Attention is called to the fact that no less than minimum salaries and wages as set forth in the Contract Documents must be paid on this Project and that the Contractor must ensure that all employees and applicants for employment are not discriminated against because of their race, creed, color, sex or national origin.

Contractor/bidders shall be aware that this project is covered under the provisions of the Davis-Bacon Prevailing Wage Act. All laborers, mechanics, and personnel working on this project shall be paid at a minimum according to the prevailing wages indicated in the Wage Decision contained in the project manual.

The work to be performed under this Contract is on a Project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the Affirmative Action Requirements contained in Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 170u. and Executive Order 11246, as amended.

Women and Minority Owned businesses qualified to perform the work contemplated by this solicitation are encouraged to Bid.

Wabash Valley Health Center, Inc. is committed to equal opportunity employment without regard to race, religion, physical or mental disability, age, veteran status, color, creed, national origin, or sex. Contractor participation in a MBE/WBE program is encouraged by the Owner.

Prospective Bidders may visit the site during normal business hours with prior coordination with the Owner and Hannig Construction, Inc.
Questions during the bidding period should be directed to Hannig Construction, Inc.

Each Bidder submitting a Bid represents that he has read and understands the Bidding Documents and Scope of Work. Each Contractor represents that he has visited the site and has adequately familiarized himself with the existing conditions. No additional cost to the Owner will be allowed due to the Contractor's failure to avail him of a complete and thorough on-site inspection of existing conditions.

Whenever products or materials are specified as "Standards" or they are otherwise named, approval of other equal quality products shall be obtained by requesting in writing and presenting for evaluation such product or material to the Engineer no later than 2:00 p.m., October 3rd, 2019. Submittals circumventing the above time frame will not be processed. Substitutions will be considered from Bidders only:

NOTICE TO BIDDERS
WABASH VALLEY HEALTH CENTER, INC.
BUILDING ADDITIONS & RENOVATIONS
1436 LOCUST STREET, TERRE HAUTE, INDIANA 47807

1. If approval is granted, product or material will be added by addendum.
2. No direct reply will be made to any requests for changes, but any requested changes approved by the Engineer will be stated in an addendum issued to all Bidders.
3. Addendums and clarifications to bidding/construction documents shall be distributed via email or faxed to bidders not later than October 4th, 2019.

The construction hereby contemplated is to be governed, at all times, by applicable provisions of the Indiana and Federal Law(s), including, but not limited to, the latest Amendments of the following:

1) Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596.
2) Part 1910 - Occupational Safety and Health Standards, Chapter VIII of Title 29, Code of Federal Regulations.
3) Part 1926 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

End of Section

INFORMATION FOR BIDDERS

1. RECEIPT AND OPENING OF BIDS.
Wabash Valley Health Center, Inc. (herein called the owner), invites bids on the attached Bid Form with Non-Collusion Affidavit with all blanks of which must be appropriately filled in. Bids will be received at the office of Hannig Construction, Inc., 815 Swan Street, Terre Haute, Indiana 478071, until the date and time indicated in the "Instructions to Bidders" portion of these written specifications.
The bids will be a privately opened by the Owner.

2. QUALIFICATION OF BIDDER.
The Owner may make such investigations as he deems necessary to determine the ability of the bidder to perform the work, and the bidders shall furnish to the Owner, all such information and data for this purpose as the Owner may request. The Owner reserves the right to reject any bid if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such bidder is properly qualified to carry out the obligations of the contract and to complete the work contemplated therein. Conditional bids will not be accepted.

3. CONDITIONS OF WORK.
Each bidder must inform himself fully of the conditions relating to the construction of the project and the employment of labor therein. Failure to do so will not relieve a successful bidder of his obligation to furnish all material and labor necessary to carry out the provisions of his contract.

4. ADDENDA AND INTERPRETATIONS.
No interpretation of the meaning of the plans, specifications, or other pre-bid documents will be made to the bidder orally. Every request for such interpretation should be in writing, addressed to Michael R. Waldbieser Engineering & Consulting Inc., 19 South 6th Street, Suite 804, Terre Haute, Indiana 47807 and addressed to Mr. Michael Waldbieser for consideration, must be received as directed in the "Notice to Bidders". Any and all such interpretations and any supplemental instructions will be in the form of written addenda to the specifications which, if issued, will be distributed as directed in the "Notice to Bidders". Failure of any bidder to receive any such addendum or interpretation shall not relieve such bidder from any obligation under his bid as submitted. Addenda so issued shall become part of the contract documents.

5. OBLIGATION OF BIDDER.
At the time of the opening of bids, each bidder will be presumed to have inspected the site and to have read and to be thoroughly familiar with the plans and contract documents (including all addenda). The failure of omission of any bidder to examine any form, instrument or document, shall in no way relieve any bidder from any obligation in respect to this bid.

6. TIME OF COMPLETION.
Bidder must agree to commence work on or before a date to be specified in a written "Notice to Proceed" from the Owner and to fully complete the project in a time frame agreed to with the Owner. Provide preliminary schedule with the bid for time of completion for the project.

INSTRUCTIONS TO BIDDERS

PROJECT: Wabash Valley Health Center, Inc.
Building Additions & Renovations
1436 Locust Street
Terre Haute, Indiana 47807

OWNER: Wabash Valley Health Center, Inc.
1436 Locust Street
Terre Haute, Indiana 47807

CONTACT: Mr. Charles Welker

BIDS: Due by: Tuesday October 8th, 2019 at 2:00 PM Local Time
At Offices: Hannig Construction, Inc.
815 Swan Street
Terre Haute, Indiana 47807
Sealed Bids
Bid on attached form - Bid Form with Non-Collusion Affidavit
Bid Bond - Not Required
Performance & Payment Bond – Not Required
Mark Envelope - Wabash Valley Health Center, Inc.
Building Additions & Renovations
1436 Locust Street
Terre Haute, Indiana 47807

Start Date - As soon as Owner awards Contract.
Bids to be good for 60 days from date which bid are due.
Finish Date - Coordinated with Owner
Contract - Contract to be prepared by the Owner.

DOCUMENTS:

Engineers Drawings
Engineers Specifications
Instructions to Bidders

Electronic copies of the bidding documents, in pdf format, may be obtained by contacting Mr. Michael R. Waldbieser at (812) 232-6510.

Copies may be purchased from Rapid Reproductions, Inc. (812) 238-1681.

Rapid Reproductions Inc.
129 South 11th Street
Terre Haute, Indiana 47807.
Phone 238-1681.

After bidding, it is requested that the unsuccessful Contractors return their set of drawings to the Owner.

CONTRACTORS RESPONSIBILITY:

A. Direct questions to the Engineer.
B. Contractor shall visit the site and familiarize himself with the work.
C. The Contractor shall leave the site in as clean condition as before the construction.
D. Hannig Construction, Inc. shall obtain the City of Terre Haute Construction Permit. Trade specific permits, tap fees, connection fees, etc. by Sub-Contractor/Bidder.
E. State approvals will be obtained by Engineer.
F. The Contractor shall coordinate with the Owner when work is to begin.
G. The Owner **is not** subject to Indiana Sales Tax and such tax should **not** be included in the bids.
H. If the Contractors discover any discrepancy on the drawings or in the specifications, they shall report the same to the Engineer before proceeding with any work affected by the discrepancy, and shall be held responsible for the results should he fail to make such report.
I. Refer to Section 1010 SUMMARY OF WORK for work included in this contract.

GENERAL CONDITIONS:

A. The drawings are for reference only. The Contractors shall verify all existing site conditions.
B. The Owner is to have access to the site at all times.
C. The Contractors shall provide all barricades and traffic control devices.
D. The Contractors shall provide directional signs for pedestrians and place as directed by the Owner.
E. Explosives are prohibited on this project.
F. The Contractors shall clean roadways and surroundings on a daily basis.
G. The staging of materials shall be approved by the Owner.
H. Any sidewalks damaged during construction shall be replaced by the General Contractor at no charge to the Owner.

MAINTENANCE:

A. The Contractors shall maintain the grounds within the project.
B. The Contractors shall protect all existing walls, glass, and existing buildings. Damaged areas are to be brought back to original condition.

DEMOLITION:

A. The Contractors are to remove and dispose of all debris in a legal manner.
B. The Contractors shall maintain dust control at all times.
C. Remove all existing construction shown on the drawings and referred to in the specifications.
D. Remove all materials associated with the demolition work from the site.

SCOPE OF WORK: (ADDITIONAL ITEMS MAY APPLY)

A. Install all safety barricades.
B. Remove existing construction as necessary and as stated on the drawings in order to install the new work under this contract.
C. Construct building additions, building renovations, and exterior site work as shown on the drawings and in the Bid Documents.

CONTRACTOR'S BID
PART I
(To be completed for all bids. Please type or print)

Bidder (Firm): _____

Address: _____ P.O. Box _____

City/State/Zip: _____

Telephone Number: _____ Fax Number: _____

Federal ID Number: _____

E-Mail Address: _____

Person to contact regarding this bid (printed): _____

Pursuant to notices given, the undersigned offers to furnish labor and/or material necessary to complete
the project of "Wabash Valley Health Center, Inc. – Building Additions & Renovations" in accordance with plans and specifications prepared by Michael R. Waldbieser Engineering & Consulting, Inc. in Terre Haute, Indiana for the sum of:

BID AMOUNT – SCOPE OF WORK AS SHOWN ON DRAWING #1820-C6 ONLY

_____ Dollars
(_____)
(Sum in Words) (Sum in Figures)

BID AMOUNT – REMAINDER OF WORK AS SHOWN ON THE DRAWINGS

_____ Dollars
(_____)
(Sum in Words) (Sum in Figures)

BID BOND
Bid Bond is not required on this project.

PERFORMANCE & PAYMENT BOND
Performance & Payment Bond is not required on this project.

PROPOSAL TIME
Provide Hannig Construction, Inc. the number of weeks to complete the project.
Number of weeks to finish project _____.

ADDENDUM ACKNOWLEGEMENT
The undersigned acknowledges receipt of the following Addenda:

Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____
Addendum No. _____ Dated _____

CONTRACTOR (BIDDER):

_____

ADDRESS:

_____

BY: _____

TITLE: _____

SIGNED: _____

DATE: _____

The Contractor and his subcontractors, if any, shall not discriminate against any employee or applicant for employment to be employed in the performance of this contract with respect to his hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment, because of his race, color, religion, national origin, or ancestry. Breach of this covenant may be regarded as a material breach of the contract.

Enclosed herewith find a properly executed Bidder's Equal Employment Opportunity Certification.

Enclosed herewith find a properly executed Contractors Non-Collusion Affidavit.

Enclosed herewith find a properly executed Certification of Non-Segregated Facilities.

Enclosed herewith find a properly executed Certification of Anti-Lobbying.

Enclosed herewith find a properly executed Certification Regarding Drug-Free Workplace.

IN TESTIMONY WHEREOF, the Bidder certifies to the accuracy and truthfulness of the above statements, oaths, and certifications, this _____ day of_____ , 2019.

_____ By _____
(Bidder's Name)

_____ Title _____

_____ By _____
(Official Address)

Title _____

(Seal)

ATTEST_____
Secretary of Corporation

NOTE: The penalty for making false statements in offers is prescribed in 18 U.S.C. 1001.

Subscribed and sworn to before me this____day of _____ , 2019.

Public Notary (Signature) _____

(Print)_____

Commission expires:_____ County of Residence: _____

CONTRACTOR'S NON – COLLUSION AFFIDAVIT

CONTRACTOR'S
NON-COLLUSION AFFIDAVIT

The Bidder, by its officers and _____ agents or representatives present at the time of filing this bid, being duly sworn, on their oaths, say that neither they nor any of them have in any way, directly in indirectly, entered into any arrangement or agreement with any other bidder, or with any public officer of the State of Indiana whereby such affiant or affiants or either of them, has paid or is to pay to such other bidder or public officer any sum of money, or has given or is to give such other bidder or public officer anything of value whatever, or such affiant or affiants or either of them has not, directly, or indirectly, entered into any arrangement or agreement with any other bidder or bidders, which tends to or does lessen or destroy free competition in the letting of the contract sought for by the attached bids; that no inducement of any form or character other than that which appears upon the face of the bid will be suggested, offered, paid or delivered to any person whomsoever to influence the acceptance of the said bid or awarding of the contract, nor has this bidder any agreement or understanding of any kind whatsoever, with any person whomsoever to pay, deliver to, or share with any other person, in any way or manner, any of the proceeds of the contract sought by this bid.

_____
FIRM NAME

_____
*OWNER-PRESIDENT-PARTNER

_____
PARTNER-VICE
PRESIDENT AND/OR SEC.

_____
TREAS.

PARTNER

Subscribed and sworn to before me this day of_____ , 2019.

Public Notary (Signature)_____

(Print)_____

Commission expires:_____ County of Residence:_____

*This form must be signed by the same person(s) who sign(s) the bid.

NON-COLLUSION AFFIDAVIT OF SUBCONTRACTOR

_____, being first duly shown, deposes and says that:

(1) He is _____
Of _____ hereinafter referred to as the "Subcontractor";

(2) He is fully informed respecting the preparation and contents of the subcontractor's Proposal submitted by the sub-contractor to _____, the Contractor for certain work in connection with the _____ Contract pertaining to the Project in _____

(3) Such subcontractor's Proposal is genuine and is not a collusive or sham proposal;

(4) Neither the subcontractor nor any of its officers, partners, owners, agents, representatives, employees or parties in interest, including this affiant, has in any way colluded, conspired, connived, or agreed, directly or indirectly, with any other Bidder, firm or person to submit a collusive or sham Proposal in connection with such Contract or to refrain from submitting a Proposal in connection with such Contract, or has in any manner, directly or indirectly, sought by unlawful agreement or connivance with any other Bidder, firm or person to fix the price or prices in said subcontractor's Proposal, or to secure through collusion, conspiracy, connivance or unlawful agreement any advantage against _____ or any person interest in the proposed Contract; and

(5) The price or prices quoted in the subcontractor's Proposal are fair and proper and are not tainted by any collusion, conspiracy, connivance or unlawful agreement on the part of the Bidder or any of its agents, representatives, owner, employees, or parties in interest, including this affiant.

(Signature)

_____

_____

Subscribed and sworn to before me this _____ day of _____, 2019.

Public Notary (Signature) _____

(Print) _____

Commission expires: _____
County of Residence: _____

CONTRACTORS CERTIFICATION OF NONSEGREGATED FACILITIES

The bidder certifies that he does not maintain nor provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees, to perform their services at any location, under his control, where segregated facilities are maintained. The Bidder certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The bidder agrees that a breach of this certificate will be in violation of the Equal Opportunity clause in any contract resulting from acceptance of this bid. As used in this certification, the term "Segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The Bidder agrees that he will obtain identical certification from proposed subcontractors prior to the award of subcontracts.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. Section 1001.

Date _____ , 2019 _____
Name of Contractor

Official Address (Including ZIP) By _____

_____ _____
Title

_____

_____

Subscribed and sworn to before me this _____ day of _____ , 2019.

Public Notary (Signature) _____

(Print) _____

Commission expires: _____
County of Residence: _____

SUBCONTRACTOR'S
CERTIFICATION OF NONSEGREGATED FACILITIES

The subcontractor certifies that he does not maintain nor provide for his employees any segregated facilities at any of his establishments, and that he does not permit his employees, to perform their services at any location, under his control, where segregated facilities are maintained. The subcontractor certifies further that he will not maintain or provide for his employees any segregated facilities at any of his establishments, and that he will not permit his employees to perform their services at any location under his control where segregated facilities are maintained. The subcontractor agrees that a breach of this certificate will be in violation of the Equal Opportunity clause in any contract resulting from acceptance of his bid. As used in this certification, the term "Segregated facilities" means any waiting rooms, work areas, restrooms and washrooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated by explicit directives or are in fact segregated on the basis of race, color, religion, or national origin, because of habit, local custom, or otherwise. The subcontractor agrees that he will obtain identical certification from proposed lower tier subcontractors prior to the award of sub- contracts.

Note: The penalty for making false statements in offers is prescribed in 18 U.S.C. Section 1001.

Date _____, 2019

Name of

Subcontractor Official Address (Including ZIP) By _____

_____

_____ _____

Title

_____

_____

Subscribed and sworn to before me this _____ day of _____ , 2019.

Public Notary (Signature) _____

(Print) _____

Commission expires: _____
County of Residence: _____

CONTRACTORS CERTIFICATION OF
ANTI-LOBBYING

The contractor certifies that to the best of his knowledge and belief, that –

1. No Federal appropriated funds have been paid or will be paid, by or on behalf of the contractor, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or any employee of a Member of Congress in connection with this Federal Contract, grant, loan, or cooperative agreement, the contractor shall complete and submit Standard Form LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

3. The contractor shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

Date _____ , 2019

_____
Name of Contractor

Official Address (Including ZIP)

_____

_____

_____

_____

By _____

_____
Title

Subscribed and sworn to before me this _____ day of _____ , 2019.

Public Notary

(Signature) _____

(Print) _____

Commission expires: _____
County of Residence: _____

CONTRACTOR'S CERTIFICATION REGARDING
DRUG-FREE WORKPLACE

The Contractor certifies that it will provide a drug-free workplace by:

1. Publishing a Statement notifying employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violation of such prohibition;

2. Establishing an ongoing drug-free awareness program to inform employees about –

   (a) The dangers of drug abuse in the workplace;
   (b) The Contractor's policy of maintaining a drug-free workplace;
   (c) Any available drug counseling, rehabilitation, and employee assistance programs; and
   (d) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

3. Giving each employee to be engaged in the performance of work on this contract a copy of the above required statement;

4. Notifying the employee in the required Statement that, as a condition of employment on this Contract, the employee will-

   (a) Abide by the terms of the Statement; and
   (b) Notify the employer in writing of his or her conviction for a violation of a criminal drug statute occurring in the workplace no later than five calendar day after such conviction;

5. Notifying the Contracting Officer in writing, within ten calendar days after receiving notice under subparagraph 4(b) form an employee or otherwise receiving actual notice of such conviction. Employers of convicted employees must provide notice, including position title, to every Contracting Officer or other designee on whose Contract activity the convicted employee was working. Notice shall include the identification number(s) of the Contract or funding Grant;

6. Taking one of the following actions, within 30 calendar days of receiving notice under subparagraph 4(b), with respect to any employee who is so convicted:

   (a) Taking appropriate personnel action against such an employee, up to and including termination, consistent with the requirements of the Rehabilitation Act of 1973, as amended; or
   (b) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purpose by a Federal, State, or local health, law enforcement, or other appropriate agency;

7. Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs 1 through 6 above.

Date _____ 2019 Name of Subcontractor _____

Official Address (Including ZIP) By _____

_____

_____ _____
Title

_____

Subscribed and sworn to before me this _____ day of _____ , 2019.

Public Notary (Signature) _____

(Print) _____

Commission expires: _____
County of Residence: _____

NOTICE OF
REQUIREMENT FOR AFFIRMATIVE ACTION
TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY
(Executive Order 11246)

1. The Bidders' attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Timetable	Goals for minority participation in each trade	Goals for female participation in each trade
Until Further Notice	3.1	6.9

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR Part 60-4.3(a), and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the Contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority of female employees of trainees from Contractor to Contractor or from project to project for the soul purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs within ten (10) working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting for this solicitation. The notification shall list the name, address and telephone number of the subcontractor, employer identification number of the subcontractor, estimated dollar amount of the subcontract, estimated starting and completion dates of the subcontract, and the geographical area in which the subcontract is to be performed.

4. As used in this Notice, and in the contract resulting from this solicitation, the "covered area" is coextensive with the political jurisdiction of the City of Terre Haute, Indiana.

EQUAL EMPLOYMENT OPPORTUNITY
Executive Order 11246
(30 F.R.12319-25)
CFR 41-60-1.4

Sec. 202. Except in contracts exempted in accordance with Section 204 of this order, all Government contracting agencies shall include in every Government contract hereafter entered into the following provisions:

"During the performance of this contract, the contractor aggresses as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer; 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 a conspicuous place, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union of workers' representative of the contractors' commitments under Section 202 of Executive Order No. 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and the rules, regulations and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order No. 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor for purposes of investigation to ascertain compliance with each rules, regulations, and orders.

(6) In the event of the contractor's non-compliance with the nondiscrimination clauses of the contract or with any of such rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or part the contractor may be declared ineligible for Government contracts in Executive Order 11246 (Subpart B Section 202 cont.) accordance with procedures authorized in Executive Order No. 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) The contract will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of Secretary of Labor pursuant to Section 202 of Executive Order No. 11246 of September 24, 1965, so that such provisions will be binding action with respect to any subcontract or purchase order as the Department may direct as a means of enforcing such

provisions including sanctions for non-compliance: Provided, however, that in the event the contractor becomes involved in, or as threatened with, litigation with a sub-contractor or vendor as a result of such direction by the Department, the contractor may request the United States to enter into such litigation to protect the interest of the United States.

CONSTRUCTION AGREEMENT

THIS AGREEMENT made this _____ day of _____, 2019 by and between the City of Terre Haute, Indiana, acting through its Redevelopment Commission, hereinafter called the Local Public Agency "LPA", and _____, hereinafter called the "Contractor".

WITNESSETH, that the Contractor and LPA for the consideration stated herein mutually agrees as follows:

ARTICLE 1. Statement of Work. The Contractor shall furnish all supervision, technical personnel, labor, materials, machinery, tools, equipment and the services, including utility and transportation and security services, necessary to perform and complete all work required for the _____ in strict accordance with the Contract Documents for the same, dated _____ and the drawings referenced to therein, all as prepared by _____ which said Contract Documents and Drawings are incorporated by reference and made a part hereof.

ARTICLE 2. The Contract Price. The LPA shall pay the Contractor for the performance of this Contract, in current funds, subject to additions and deductions as provided in the Contract Documents, the sum of $_____ (_____Dollars). The Contractor's Bid Proposal including lump sum prices, unit prices and Certifications are incorporated by reference and made part hereof.

ARTICLE 3. Contract Documents. This Contract shall consist of the following component parts:

a. This instrument.

b. The Contract Documents, entitled, Contract Documents for Department of Redevelopment_____
_____
_____.

c. The Drawings referenced in the Contract Documents as identified in (b.) above.

d. The Contractor's Bid Proposal as identified in ARTICLE 2 of this instrument.

e. Addenda numbers __ through __.

This instrument, together with the other documents, enumerated in this Article 3, which said other documents are as fully a part of the Contract as if hereto attached or herein repeated, form the Contract. In the event that any provision of any other component part of the Contract conflicts with any provision of any other component part, the provision of the component part first enumerated in this Article 3 shall govern, except shall be construed in the order of preference of the component part of the Contract which each modified.

ARTICLE 4. Labor Standards Provisions. The project to which the work covered by this Contract pertains is being assisted under Title I of the Housing and Urban Development Act of 1974, as amended, by the United States of America, and therefore subject to the Federal Labor Standards Provisions contained in Form HUD-4010 attached to this Contract as Appendix "A" and made an integral part hereof.

ARTICLE 5. Payment of Prevailing Wages. In compliance with the Davis-Bacon Act (40 U.S.C. 276a to a-7) and as supplemented by the department of Labor regulations, no less than the minimum wage rates as determined by the Secretary of Labor of the United States shall be paid on this Project. ALL contractors performing work under this contract are required to pay wages to laborers and mechanics at a rate no less than the minimum wages specified in General Wage Decision _____ with ____

Modifications Published _____ __, 2019, attached to this contract as Appendix "B" and made an integral part hereof.

ARTICLE 6. Subcontracts. The Contractor shall physically incorporate, or cause to be incorporated, in all subcontracts for work in connection with this project this ARTICLE and ARTICLES 4 and 5 above with the referenced Appendices.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in three (3) original counterparts as of the day and year first above written.

LPA	CONTRACTOR
Terre Haute Redevelopment Commission, City of Terre Haute 301 City Hall-17 Harding Avenue Terre Haute, IN 47807	_____ _____ _____
By _____	By _____
Title Executive Director	Title _____
Attest _____	Attest _____
Title Grants/Planning Administrator	Title _____

Certifications

I, _____, certify that;

(1.) I am the _____ of the corporation named as Contractor herein; and

(2.) that _____, who signed this Contract on behalf of the Contractor, was then _____of said corporation; and

(3.) that said Contract was duly signed for and in behalf of said corporation by authority of its governing body, and is within the scope of its corporate powers.

By _____

(Print or type the names under all signatures and affix Corporate Seal)

LABOR STANDARDS PROVISIONS

201. THE PROJECT TO WHICH THE WORK COVERED BY THIS CONTRACT PERTAINS

The project to which the work covered by this Contract pertains is being assisted under Title I of the Housing and Community Development Act of 1974, as amended, by the United States of America, and therefore subject to the Federal Labor Standard Provisions contained elsewhere in this part of the General Conditions.

202. INELIGIBLE SUBCONTRACTORS

The Contractor shall not subcontract any pad of the work covered by this Contract or permit subcontracted work to be further subcontracted without the Local Public Agency's prior written approval of the subcontractor. The Local Public Agency will not approve any subcontractor for work covered by this Contract who is at the time ineligible under the provisions *of any* applicable regulations *issued by the Secretary of Labor,* U.S. Department *of* Labor or the Secretary of Housing and Urban Development, to receive an award of such subcontract.

203. PROVISIONS TO BE INCLUDED IN CERTAIN SUBCONTRACTS

The Contractor shall include or cause to be included in each subcontract covering any of the work by this contract, provisions which are consistent with these Labor Standards Provisions and also a clause requiring the subcontractors to include such in any lower tier subcontracts which they may enter into, together with a clause requiring such insertion in any further subcontracts that may in turn be made.

204. BREACH OF LABOR STANDARDS PROVISIONS

In addition to the causes for termination of this Contract as herein elsewhere set forth, the Local Public *Agency reserves the* right *to terminate this* Contract *if the* Contractor *or any* subcontractor whose subcontract covers any of the work covered by this Contract shall breach any of these Labor Standards Provisions. A breach of the Federal Labor Standards Provisions may also be grounds for debarment as provided by the applicable regulations issued by the Secretary of Labor, United States Department of Labor.

205. NON-FEDERAL LABOR STANDARDS PROVISIONS

The following Non-Federal Labor Standards Provisions, including the following provisions concerning maximum hours of work and overtime compensation, with respect to the categories and classifications of employee hereinafter mentioned are included in this Contract pursuant to the requirements of applicable State or Local Laws, but the inclusion of such provisions shall not be construed to relieve the Contractor or any subcontractor from the pertinent requirements of any corresponding Federal Labor Standards Provision of this Contract. The limitations, if any, in these Non-Federal Labor Standards Provisions upon the hours per day, per week or per month which employees engaged on the work covered by this Contract may be required or permitted to work thereon shall not be exceeded.

a. Architects, technical engineers, draftsmen, technicians, laborers, and mechanics shall not be permitted to work more than forty hours per week, unless such employees are paid at least time and a half for hours of work in excess of the limits prescribed herein. If there is a State or Local law applicable to any or all of the foregoing classes, the Local Public Agency will require compliance with the State or Local laws applicable to such class or classes, instead of compliance with the above requirements.

b. No person under sixteen (16) years of age and no person whose age or physical condition is such as to make his employment dangerous to his health or safety or the health or safety of

others shall be employed in the project: PROVIDED that this shall not operate against the employment of physically handicapped persons, otherwise employable, where such persons may safely be assigned to work which they can ably perform.

206. FEDERAL LABOR STANDARDS PROVISIONS
(Form HUD-4010 Facsimile)

FEDERAL LABOR STANDARDS PROVISIONS
U.S. Department of Housing
and Urban Development

Applicability

The Project or Program to which the construction work covered by this contract pertains is being assisted by the United State of America and the following Federal Labor Standards Provisions are included in this Contract pursuant to the provisions applicable to such Federal assistance.

A.1.(i) Minimum Wages. All laborers and mechanics employed or working upon the site of the work (or under the United States Housing Ad of 1937 or under the Housing Act of 1949 in the construction or development of the project), will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under Section 1 (b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of 29 CFR 5.5(a)(1)(iv); also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs, which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period.

Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR Part 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under 29 CFR Part 5.5(a)(1)(ii) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(ii)(a) Any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. HUD shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

(1) The work to be performed by the classification request is not performed by a classification in the wage determination; and
(2) The classification is utilized in the area by the construction industry; and
(3) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(b) If the contractor and the laborers and mechanics to be employed in the classification (if

known), or their representatives, and HUD or its designee agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by HUD or its designee to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, D.C. 20210. The Administrator or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB control number 1215-0140.)

(c) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and HUD or its designee do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), HUD or its designee shall refer the questions, including the views of all interested parties and the recommendation of HUD or its designee, to the Administrator for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise HUD or its designee or will notify HUD or its designee within the 30-day period that additional time is necessary. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

(d) The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(b) or (c) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(iii) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(iv) If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program. (Approved by the Office of Management and Budget under OMB Control Number 1215-0140.)

2. Withholding. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the contractor under this contract or any other Federal contract with the same prime contractor, or any other Federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee or helper, employed or working on the site of the work (or under the United States Housing Act of 1937 or under the Housing Act of 1949 in the construction or development of the project), all or part of the wages required by the contract, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment advance, or guarantee of funds until such violations have ceased. HUD or its designee may, after written notice to the contractor, disburse such amounts withheld for and on account of the contractor or subcontractor to the respective employees to whom they are due. The Comptroller General shall make such disbursements in the case of direct Davis-Bacon Act contracts.

3.(i) Payrolls and basic records. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work (or under the United States Housing Act of 1937, or under the Housing Act of 1949, in the construction or development of the project). Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contribution or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in Section 1 (b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5 (a)(l)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in Section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which shown that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee program, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs. (Approved by the Office of Management and Budget under OMB Control Numbers 1215-0140 and 1215-0017.)

(ii.)(a) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to HUD or its designee if the agency is a party to the contract, but if the agency is not such a party, the contractor will submit the payrolls to the applicant, sponsor, or owner, as the case may be, for transmission to HUD or its designee. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR Part 5.5(a)(3)(i). This information may be submitted in any form desired. Optional Form WH-347 is available for this purpose and may be purchased from the Superintendent of Documents (Federal Stock Number 029-005-00014-1), U.S. Government Printing Office, Washington, D.C. 20402. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. (Approved by the Office of Management and Budget under OMB Control Number 1215-0149.)

(b) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

(1) That the payroll for the payroll period contains the information required to be maintained under 29 CFR Part 5.5(a)(3)(i) and that such information is correct and complete.

(2) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in 29 CFR Part 3;

(3) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(c) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph A.3.(ii)(b) of this section.

(d) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

(iii) The contractor or subcontractor shall make the records required under paragraph A.3(i) of this section available for inspection, copying, or transcription by authorized representatives of HUD or its designee or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, HUD or its designee may, after written notice to the contractor, sponsor, applicant, or owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR Part 5.12.

4.(i) Apprentices and Trainees. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ration of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice s level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that at different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(ii) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeymen wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment

and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

iii. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

3. Compliance with Copeland Act requirements. The contractor shall comply with the requirements of 29 CFR Part 3 which are incorporated by reference in this contract.

6. Subcontracts. The contractor or subcontractor will insert in any subcontracts the clauses contained in 29 CFR 5.5(a)(1) through (10) and such other clauses as HUD or its designee may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. Prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR Part 5.5.

7. Contract termination; debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontract or as provide in 29 CFR 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements. All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes concerning labor standards. Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and HUD or its designee, the U.S. Department of Labor, or the employees of their representatives.

10.(i) Certification of Eligibility. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(ii) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1) or to be awarded HUD contracts or participate in HUD programs pursuant to 24 CFR Part 24.

(iii) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001. Additionally, U.S. Criminal Code, Section 1010, Title 18, U.S.C., "Federal Housing Administration transactions", provides in part: "Whoever, for the purpose of... influencing in any way the action of such Administration...makes, utters or publishes any statement, knowing the same to be false...shall be fined not more than $5,000 or imprisoned not more than two years, or both."

11. Complaints, Proceedings, or Testimony by Employees. No laborer or mechanic to whom the wage, salary, or other labor standards provisions of this contract are applicable shall be discharged or in any other manner discriminated against by the Contractor or any subcontractor because such employee has filed any complaint or instituted or caused to be instituted any proceeding or has

testified or is about to testify in any proceeding under or relating to the labor standards applicable under this Contract to his employer.

B. Contract Work Hours and Safety Standards Act. As used in this paragraph, the terms "laborers" and "mechanics" include watchmen and guards.

(1) Overtime requirements. No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.

(2) Violation; liability for unpaid wages; liquidated damages. In the event of any violation of the clause set forth in subparagraph (1) of this paragraph, the contractor and any subcontractor responsible therefore shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in subparagraph (1) of this paragraph, in the sum of $10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in subparagraph (1) of this paragraph.

(3) Withholding for unpaid wages and liquidated damages. HUD or its designee shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contract, or any other Federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the some prime contractor such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in subparagraph (2) of this paragraph.

(4) Subcontracts. The contractor or subcontractor shall insert in any subcontracts the clauses set forth in subparagraph (1) through (4) of this paragraph and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in subparagraphs (1) through (4) of this paragraph.

C. Health and Safety

(1) No laborer or mechanic shall be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous to his health and safety as determined under construction safety and health standards promulgated by the Secretary of Labor by regulation.

(2) The Contractor shall comply with all regulations issued by the Secretary of Labor pursuant to Title 29 Part 1926 (formerly part 1518) and failure to comply may result in imposition of sanctions pursuant to the Contract Work Hours and Safety Standards Act (Public Law 91-54,83 Stat.96).

(3) The Contractor shall include the provisions of this Article in every subcontract so that such provisions will be binding on each subcontractor. The Contractor shall take such action with respect to any subcontract as the Secretary of Housing and Urban Development or the

Secretary of Labor shall direct as a means of enforcing such provisions.

ATTACHMENT TO FEDERAL LABOR STANDARDS PROVISIONS

(FORM HUD-4010.1 FACSIMILE)

SO-CALLED "ANTI-KICKBACK ACT" AND REGULATIONS PROMULGATED
PURSUANT THERETO BY THE SECRETARY OF LABOR
UNITED STATES DEPARTMENT OF LABOR

TITLE 18, U.S.C., Section 874

(Replaces section 1 of the Act of June 13, 1934 (48 Stat. 948,40 U.S.C. sec. 276b) pursuant to the Act of June 25, 1948,62 Stat. 862)

KICKBACKS FROM PUBLIC WORKS EMPLOYEES

Whoever, by force, intimidation, or threat of procuring dismissal from employment, or by any other manner whatsoever induces any person employed in the construction, prosecution, completion or repair of any public building, public work, or building or work financed in whole or in part by loans or grants from the United States, to give up any part of the compensation to which he is entitled under his contract of employment, shall be fined not more than $5,000 or imprisoned not more than five years, or both.

SECTION 2 OF THE ACT OF JUNE 13, 1934, AS AMENDED (48 Stat. 948,62 Stat. 862,63 Stat. 108,72 Stat. 967,40 U.S.C., sec. 276c)

The Secretary of Labor shall make reasonable regulations for contractors and subcontractors engaged in the construction, prosecution, completion or repair of public buildings, public works or buildings or works financed in whole or in part by loans or grants from the United States, including a provision that each contractor and subcontractor shall furnish weekly a statement with respect to the wages paid each employee during the preceding week. Section 1001 of Title 1 8 (United States Code) shall apply to such statements.

Pursuant to the aforesaid Anti-Kickback Act, the Secretary of Labor, United States Department of Labor, has promulgated the regulations hereinafter set forth, which regulations are found in Title 29, Subtitle A, Code of Federal Regulations, Part 3. The term "this part," as used in the regulations hereinafter set forth, refers to Part 3 last above mentioned. Said regulations are as follows:

TITLE 29 - LABOR

Subtitle A - Office of the Secretary of Labor

PART 3 -CONTRACTORS AND SUBCONTRACTORS ON PUBLIC BUILDING OR PUBLIC WORK FINANCED IN WHOLE OR IN PART BY LOANS OR GRANTS FROM THE UNITED STATES

Section 3.1 Purpose and scope.

This part prescribes "anti-kickback" regulations under section 2 of the Act of June 13, 1934, as amended (40 U.S.C. *276e),* popularly known as the Copeland Act. This part applies to any contract which is subject to Federal wage standards and which is for the construction prosecution, completion, or repair of public buildings, public works or buildings or works *financed in* whole *or in* part by loans *or* grants *from the* United *States. The* part *is* intended to aid in the enforcement of the minimum wage provisions of the Davis-Bacon Act and the various statues dealing with Federally assisted construction that contain similar minimum wage provisions, including those provisions which are not subject to Reorganization Plan No. 14 (e.g., the College Housing Act of 1950, the Federal Water Pollution Control Act, and the Housing Act of 1959), and in the enforcement of the overtime provisions of the Contract Work Hours Standards Act whenever they are applicable to construction work. The part details the obligation of contractors and subcontractors relative to the weekly submission of statements regarding the wages paid or work covered thereby; sets forth the circumstances and procedures governing the making of pay- roll deductions from the wages of those employed on such work; and delineates the methods of payment permissible on such work.

Section 3.2 Definitions.

As used in the regulations in this part:

(a) The terms "building" or "work" generally include construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work. The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, and canals; dredging, shoring, scaffolding, drilling, blasting, excavating, clearing, and landscaping. Unless conducted in connection with and at the site of such a building ,or work as is described in the foregoing sentence, the manufacturer or furnishing of materials, articles, supplies or equipment (whether or not a Federal or State agency acquires title to such materials, articles, supplies, or equipment during the course of the manufacture or furnishing, or owns the materials from which they are manufactured or furnished) is not a "building" or "work" within the meaning of the regulations in this part.

(b) The terms "construction," "prosecution," "completion," or "repair" mean all types of work done on a particular building or work at the site thereof, including, without limitation, altering, remodeling, painting and decorating, the transporting of materials and supplies to or from the building or work by the employees of the construction contractor or construction subcontractor, and the manufacturing or furnishing of materials, articles, supplies, or equipment on the site of the building or work, by persons employed at the site by the contractor or subcontractor.

(c) The terms "public building" or "public work" include building or work for whose construction, prosecution, completion, or repair, as defined above, a Federal agency is a contracting party, regardless of whether title thereof is in a Federal agency.

(d) The term "building or work financed in whole or in part by loans or grants from the United States "includes building or work for whose constructions, prosecution, completion, or re- pair, as defined above, payment or part payment is made directly or indirectly from funds provided by loans or grants by a Federal agency. The term does not include building or work for which Federal assistance is limited solely to loan guarantees or insurance.

(e) Every person paid by a contractor or subcontractor in any manner for his labor in the construction, prosecution, completions, or repair of a public building or public work or building or work financed in whole or in part by loans or grants from the United States is "employed" and receiving "wages," regardless of any contractual relationship alleged to exist between him and the real employer.

(f) The term "any affiliated person" includes a spouse, child, parent, or other close relative of the contractor or subcontractor; a partner or officer of the contractor or subcontractor; a corporation closely connected with the contractor or subcontractor as parent, subsidiary or otherwise, and an officer or agent of such corporation.

(g) The term "Federal agency" means the United States, the District of Columbia, and all executive departments, independent establishments, administrative agencies, and instrumentalities of the United States and of the District of Columbia, including corporations, all or substantially all of the stock of which is beneficially owned by the United States, by the District of Columbia, or any of the foregoing departments, establishments, agencies, and instrumentalities.

Section 3.3 Weekly statement with respect to payment of wages.

(a) As used in this section, the term "employee" shall not apply to persons in classifications higher than that of laborer or mechanic and those who are the immediate supervisors of such employees.

(b) Each contractor or subcontractor engaged in the construction, prosecution, completion, or repair of any public building or public work, or building or work financed in whole or in part by loans or grants from the United States, shall furnish each week a statement with respect to the wages paid each of its employees engaged on work covered by 29 CFR Parts 3 and 5 during the preceding weekly payroll period. This statement shall be executed by the contractor or subcontractor or by an authorized officer or employee of the contractor or subcontractor who supervises the payment of wages, and shall be on form WH-348, "Statement of Compliance", or on an identical form on the back of WH-347, "Payroll (For Contractors Optional Use)" or on any form with identical wording. Sample copies of WH-347 and WH-348 may be obtained from the Government contracting or sponsoring agency, and copies of these form may be purchased at the Government Printing Office.

(c) The requirements of this section shall not apply to any contract of $2,000 or less.

(d) Upon a written finding by the head of a Federal agency, the Secretary of Labor may provide reasonable limitations, variations, tolerances, and exemptions from the requirements of this section subject to such conditions as the Secretary of Labor may specify.

[29 F.R. 95, Jan. 1, 1964, as amended at 33 F.R. 10186, July 17, 1968]

Section 3.4 Submission of weekly statements and the preservation and inspection of weekly payroll records.

(a) Each weekly statement required under Section 3.3 shall be delivered by the contractor or subcontractor, within seven days after the regular payment date of the payroll period, to a representative of a Federal or State agency in charge at the site of the building or work, or, if there is no representative of a Federal or State agency at the site of the building or work, the statement shall be mailed by the contractor or subcontractor, within such time, to a Federal or State agency contracting for or financing the building or work. After such examination and check as may be made, such statement, or a copy thereof, shall be kept available, or shall be transmitted together with a report of any violation, in accordance with applicable procedures prescribed by the United States Department of Labor.

(b) Each contractor or subcontractor shall preserve his weekly payroll records for a period of three years from date of completion of the contract. The payroll records shall set out accurately and completely the name and address of each laborer and mechanic, his current classification, rate of pay, daily and

weekly number of hours worked, deductions made, and actual wages paid. Such payroll records shall be made available at all times for inspection by the contracting officer or his authorized representative, and by authorized representatives of the Department of Labor.

Section 3.5 Payroll deductions permissible without application to or approval of the Secretary of Labor.

Deductions made under the circumstances or in the situations described in the paragraphs of this section may be made without application to and approval of the Secretary of Labor:

(a) Any deduction made in compliance with the requirements of Federal, State, or local law, such as Federal or State with- holding income taxes and Federal social security taxes.

(b) Any deduction of sums previously paid to the employee as a bona fide prepayment of wages when such prepayment is made without discount or interest a "bona fide prepayment of wages" is considered to have been made only when cash or its equivalent has been advanced to the person employed in such manner as to give him complete freedom of disposition of the advanced funds.

(c) Any deduction of amounts required by court process to be paid to another, unless the deduction is in favor of the contractor, subcontractor or any affiliated person, or when collusion or collaboration exists.

(d) Any deduction constituting a contribution on behalf of the person employed to funds established by the employer or representatives of employees, or both, for the purpose of providing either from principal or income, or both, medical or hospital care, pensions or annuities on retirement, death benefits, compensation for injuries, illness, accidents, sickness, or disability, or for insurance to provide any of the foregoing, or unemployment benefits, vacation pay, savings accounts, or similar payments for the benefit of employees, their families and dependents: Provided, however, That the following standards are met: (1) The deduction is not otherwise prohibited by law; (2) it is either: (i) Voluntarily consented to by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of or for the continuation of employment, or (ii) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; (3) no profit or other benefit if otherwise obtained, directly or indirectly, by the contractor or subcontractor or any affiliated person in the form of com- mission, dividend, or otherwise; and (4) the deductions shall serve the convenience and interest of the employee.

(e) Any deduction contributing toward the purchase of United States Defense Stamps and Bonds when voluntarily authorized by the employee.

(f) Any deductions required by the employee to enable him to repay loans to or to purchase shares in credit unions organized and operated in accordance with Federal and State credit union statutes.

(g) Any deduction voluntarily authorized by the employee for the making of contributions to governmental or quasi-governmental agencies, such as the American Red Cross.

(h) Any deduction voluntarily authorized by the employee for the making of contributions to Community Chests, United Givers Funds, and similar charitable organizations.

(i) Any deductions to pay regular union initiation fees and membership dues, not including fines or special assessments: Provided however, that a collective bargaining agreement between the contractor or subcontractor and representatives of its employees provides for such deductions and the deductions are not otherwise prohibited by law.

(j) Any deduction not more than for the "reasonable cost' of board, lodging, or other facilities meeting the requirements of section 3(m) of the Fair Labor Standard Act of 1938, as amended, and Part 531 of this title. When such a deduction is made the additional records required under Section 516.27(s) of this title shall be kept.

Section 3.6 Payroll deductions permissible with the approval of the Secretary of Labor.

Any contractor or subcontractor may apply to the Secretary of Labor for permission to make any deduction not permitted under Section 3.3. The Secretary may grant permission whenever he finds that:

(a) The contractor, subcontractor, or any affiliated person does not make a profit or benefit directly or indirectly from the deduction either in the form of a commission, dividend, or otherwise;

(b) The deduction is not otherwise prohibited by law;

(c) The deduction is either (1) voluntarily consented by the employee in writing and in advance of the period in which the work is to be done and such consent is not a condition either for the obtaining of employment or its continuance, or (2) provided for in a bona fide collective bargaining agreement between the contractor or subcontractor and representatives of its employees; and

(d) The deduction serves the convenience and interest of the employee.

Section 3.7 Applications for the approval of the Secretary of Labor.

Any application for the making of payroll deductions under Section 3.6 shall comply with the requirements prescribed in the following paragraphs of this section:

(a) The application shall be in writing and shall be addressed to the Secretary of Labor.

(b) The application shall identify the contract or contracts under which the work in question is to be performed. Permission will be given for deductions only on specific, identified contracts, except upon a showing of exceptional circumstances.

(c) The application shall state affirmatively that there is compliance with the standards set forth in the provisions of Section 3.6. A full statement of the facts indicating such compliance shall accompany the affirmation.

(d) The application shall include a description of the pro- posed deduction, the purpose to be served thereby, and the classes of laborers or mechanics from whose wages the proposed deduction would be made.

(e) The application shall state the name and business of any third person to whom any funds obtained from the proposed deductions are to be transmitted and the affiliation of such person, if any, with the applicant.

Section 3.8 Action by the Secretary of Labor upon applications.

The Secretary of Labor shall decide whether or not the requested deduction is permissible under provision of Section 3.6; and shall notify the applicant in writing of his decision.

Section 3.9 Prohibited payroll deductions.

Deductions not elsewhere provided for by this part and which are not found to be permissible under Section 3.6 are prohibited.

Section 3.10 Methods of payment of wages.

The payment of wages shall be by cash, negotiable instruments payable on demand, or the additional forms of compensation for which deductions are permissible under this W . No other methods of payment shall be reorganized on work subject to the Copeland Act.

Section 3.11 Regulations part of contract.

All contracts made with respect to the construction, prosecution, completion, or repair of any public building or public work or building or work financed in whole or in part by loans or grants from the United States covered by the regulations in this part shall expressly bind the contractor or subcontractor to comply with such of the regulations in this part as may be applicable. In this regard, see Section 5.5(a) of this subtitle.

SECTION 3 & EQUAL EMPLOYMENT OPPORTUNITY REQUIREMENTS

401. PRE-CONSTRUCTION CONFERENCE

The contractor agrees that he or an authorized representative of his company or corporation and all subcontractors will attend a pre-construction hearing, sponsored by the Local Public Agency, before any work is accomplished concerning this contract.

402. SECTION 3 COVERED PROJECT AREA

The boundaries of the Section 3 Covered Project Area for this contract are those, coextensive with the Political Jurisdiction of the County of Vigo, Indiana.

403. SECTION 3 CLAUSE

Every contracting party, contractor and subcontractor shall incorporate, or cause to be incorporated in all contracts for work in connection with a Section 3 covered project, the following clause:

SECTION 3 CLAUSE

A. The work to be performed under this contract is on a project assisted under a program providing direct Federal financial assistance from the Department of Housing and Urban Development and is subject to the requirements of Section 3 of the Housing and Urban Development Act of 1968, as amended, 12 U.S.C. 1701u. Section 3 requires that to the greatest extent feasible opportunities for training and employment be given lower income residents of the project area and contracts for work in connection with the project be awarded to business concerns, which are located in, or owned in substantial part by persons residing in the area of the project.

B. The parties to this contract will comply with the provisions of said Section 3 and the regulations issued pursuant thereto by the Secretary of Housing and Urban Development set forth in 24 CFR-, and all applicable rules and orders of the Department issued there under prior to the execution of this contract. The parties to this contract certify and agree that they are under no contractual or other disability, which would prevent them from complying with these requirements.

C. The contractor will send to each labor organization or representative of workers with which he has a collective bargaining agreement or other contract or understanding, if any, a notice advising the said labor organization or workers' representative of his commitments under this Section 3 clause and shall post copies of the notice in conspicuous places available to employees and applicants for employment or training.

D. The contractor will include this Section 3 clause in every subcontract for work in connection with the project and will, at the direction of the applicant for or recipient of Federal financial assistance, take appropriate action pursuant to the subcontract upon a finding that the subcontractor is in violation of regulations issued by the Secretary of Housing and Urban Development, 24 CFR--. The contractor will not subcontract with any subcontractor where it has notice or knowledge that the latter has been found in violation of regulations under 24 CFR-- and will not let any subcontract unless the subcontractor has first provided it with a preliminary statement of ability to comply with the requirements of these regulations.

E. Compliance with the provisions of Section 3, the regulations set forth in 24 CFR-- and all applicable rules and orders of the Department issued there under prior to the execution of the contract, shall be a condition of the Federal financial assistance provided to the project, binding upon the applicant or recipient for such assistance, its successors and assigns.

Failure to fulfill these requirements shall subject the applicant or recipient, its contractors and subcontractors, its successors, and assigns to those sanctions specified by the grant or loan agreement or contract through which Federal assistance is provided and to such sanctions as are specified by 24 CFR--.135.

404. BIDDING REQUIREMENTS

All prospective contracting parties, contractors and subcontractors for work in connection with this Section 3 covered project shall provide, prior to the signing of the contract, a preliminary statement of work force needs (skilled, semi-skilled, unskilled labor and trainees by category); where not known, such information shall be supplied prior to the signing of any contract between contractors and their subcontractors.

405. UTILIZATION OF BUSINESS LOCATED IN OR OWNED IN SUBSTANTIAL PART BY PERSONS RESIDING IN THE COVERED AREA

All contracting parties, contractors and subcontractors undertaking work on this Section 3 covered project shall assure that to the greatest extent feasible, contracts for work to be performed in connection with the project are awarded to business concerns located within this Section 3 covered project area or business concerns owned in substantial part by persons residing in the Section 3 covered area.

406. FULFILLMENT OF SECTION 3 OBLIGATION BY CONTRACTING PARTIES, CONTRACTORS AND SUBCONTRACTORS

Each contracting party, Contractor and Subcontractors under- taking work in connection with this Section 3 covered project shall fulfill his Section 3 obligations by developing and implementing a Section 3 Affirmative Action Program in accordance with the following format:

SECTION 3

AFFIRMATIVE ACTION PROGRAM

Implementing Section 3 of the Housing and Urban Development Act of 1968, providing for employment opportunities for businesses and lower income persons in connection with HUD assisted projects.

PART I: GENERAL INFORMATION

Contractor's Name and Address

Contractor's EEO Officer & Telephone Number

Project Name

Project Number

Project Location (City, County & State)

Construction Starting & Completion Dates

Determination of Project Area Boundaries

The project area for the purposes of this Section 3 Affirmative Action Program is coextensive with the political jurisdiction of the COUNTY OF VIGO, INDIANA.

PART II: UTILIZATION OF LOWER INCOME AREA RESIDENTS AS TRAINEES AND EMPLOYEES

Each applicant, recipient, contractor or subcontractor undertaking work in connection with a Section 3 covered project shall fulfill his obligation to utilize lower income project area residents as trainees and employees to the greatest extent feasible by:

1. Establishing a goal consistent with Section 3 regulations for vacant positions in various occupational categories to be filled by lower income project area residents.

2. Using maximum number of persons in the various training categories in all phases of work to be performed; and, filling all vacant training positions with lower income project area residents except those training positions which remain unfilled after a good faith effort has been made to fill them with eligible lower income project area residents.

Complete the form on the following page (ESTIMATED PROJECT WORKFORCE BREAKDOWN) columns 2, 3, 4, and 5 in establishing goals for the number of positions to be filled by lower income project area residents as employees and trainees in the various occupational categories.

Each applicant, recipient, contractor or subcontractor shall fulfill his obligation to utilize lower income project area residents as trainees and employees to the greatest extent feasible by establishing that a good faith effort has been made. Such good faith effort shall, at a minimum, set forth evidence acceptable to the Secretary of HUD that it has:

1. Ascertained from the Indiana Area Office Director of HUD the boundaries of the Section 3 covered project area.

2. Attempted to recruit from the appropriate areas the necessary number of lower income residents through: local advertising media, signs placed at the proposed site for the project, and community organizations and public or private institutions operating within or serving the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program or the U.S. Employment Service.

3. Maintain a list of all lower income area residents who have applied either on their own or on a referral from any source; and, in the case of trainees, employ such persons, if otherwise eligible and if a trainee vacancy exist; or, in the case of regular applicants determine the qualifications of such persons and employ such persons if their qualifications are satisfactory and if an employment opening exists. If the contractor has no trainee vacancy or no employment opening, the trainee or employment applicant, if otherwise eligible, shall be listed for the first available trainee vacancy or the first available employment opening.

4 Any applicant, recipient, contractor or subcontractor which fills vacant training positions or employment positions in its organization immediately prior to undertaking work pursuant to a Section 3 covered project shall set forth evidence acceptable to the Secretary of HUD that its actions were not an attempt to circumvent these regulations.

ESTIMATED PROJECT WORKFORCE BREAKDOWN

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Job Category	Total Estimated Positions	Positions Currently Filled By Permanent Employees	Positions Not Currently Occupied	Positions To Be Filled with L.I.P.A.R.
TRADE:				
Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				
TRADE:				
Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				
TRADE:				
Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				
TRADE:				
Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				

ESTIMATED PROJECT WORKFORCE BREAKDOWN (Continued)

TRADE:

Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				

TRADE:

Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				

TRADE:

Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				

TRADE:

Journeyman				
Helpers				
Apprentices				
Max. No. Trainees				
Others:				

***** L.I.P.A.R. – (L)ower (I)ncome (P)roject (A)rea (R)esidents *****

Definition: Individuals residing in the designated Section # Project Area whose combined family income does not exceed 90 % of the medium in the Standard Metropolitan Statistical Area.

COMPANY: ____________________________ DATE: ______________________

SIGNATURE: __________________________ TITLE: ______________________

PART III: UTILIZATION OF BUSINESS LOCATED IN OR OWNED IN SUBSTANTIAL PART BY PERSONS RESIDING IN THE AREA

Each applicant, recipient, contractor or subcontractor under- taking work in connection with a Section 3 covered project shall fulfill his obligations to utilize business concerns located within or owned in substantial part by persons residing in the Section 3 covered project area by developing an Affirmative Action Plan.

The Plan shall:

a. Set forth the approximate number and dollar value of all contracts proposed to be awarded to all businesses within each category (type or profession) over the duration of the Section 3 covered project in question.

b. Analyze the information set forth in paragraph a. above and the availability of eligible business concerns within the project area doing business in professions or occupations identified as needed in paragraph a. above, and set forth a goal or target number and estimated dollar amount of contracts to be awarded to the eligible business and entrepreneurs within each category over the duration of the Section 3 covered project.

Complete the form at the end of this PART (PROPOSED CONTRACTS BREAKDOWN) columns 1, 2, 3, 4, and 5 in establishing the goals referred to in paragraph a. and b. above.

Each applicant, recipient, contractor or subcontractor shall fulfill his obligation to utilize business concerns located within or owned in substantial part by persons residing in the Section 3 covered project area by establishing that a good faith effort has been made to implement its Affirmative Action Plan. Such good faith effort shall, at a minimum, set forth evidence acceptable to the Secretary of HUD that it has:

1. Ascertained from the Indiana Area Office Director of HUD the boundaries of the Section 3 covered project area.

2. Attempted to recruit from the appropriate areas the necessary eligible business concerns through: Local advertising media, signs placed at the proposed site for the project; and community organization and public or private institutions operating within or serving the project area such as Service Employment and Redevelopment (SER), Opportunities Industrialization Center (OIC), Urban League, Concentrated Employment Program or the U.S. Employment Service, as well as the Chamber of Commerce and any equivalent organizations in the section 3 covered project area.

3. Insertion in bid documents, the Affirmative Action Plan and the identification of the Section 3 project area.

4. Formally contact unions, contractors and subcontractors, and trade associations to secure their cooperation for this Section 3 Affirmative Action Program.

5. To insure that all appropriate project area business concerns are notified of pending contractual opportunities either personally or through locally utilized media.

6. Insure that contracts which are typically let on a negotiated rather than a bid basis in areas other than Section 3 covered project areas, are also let on a negotiated basis, whenever feasible, when let in a section 3 covered project area.

7. Where competitive bids are solicited, bidders are required to submit their utilization goals, and their affirmative action plans for accomplishing their goals. Bids will be evaluated to determine whether the affirmative action plan proposed will accomplish the stated goals.

8. Where advantageous, seek the assistance of local officials of the HUD Area Office in preparing and implementing the Affirmative Action Plan.

PROPOSED SUBCONTRACTS BREAKDOWN

COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4	COLUMN 5
Type of Contract (Business or Profession)	Total Number of Contracts	Approximate Total Dollar Amount of Contracts	Estimated Number of Contracts to Project Area Businesses	Estimated Total Dollar Amount of Project Area Business Contracts

COMPANY: _____

PROJECT NAME: _____

PROJECT NUMBER: _____

E.E.O. OFFICER: _____
(Signature)

DATE: _____

407. EQUAL OPPORTUNITY CLAUSE

The applicant hereby agrees that it will incorporate or cause to be incorporated into any contract for construction work, or modification thereof, as defined in the regulations of the Secretary of Labor at 41 CFR Chapter 60, which is paid for in whole or in part with funds obtained from the Federal Government pursuant to a grant, contract, loan, insurance, or guarantee, or undertaken pursuant to any Federal program involving such grant, contract, loan, insurance, or guarantee, the following equal opportunity clause:

During the performance of this contract, the contractor agrees as follows:

(1) The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during their employment without regard to their race, color, religion, 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, and make available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

(2) The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(3) The contractor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided advising the said labor union or workers' representatives of the contractor's commitments under this section, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by rules regulations, and orders of the Secretary of Labor, or pursuant thereto and will permit access to his books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the contractor's noncompliance with the nondiscrimination clauses of this contract or with any of the said rules regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the contractor may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of labor, or as otherwise provided by law.

(7) The contractor will include the portion of the sentence immediately preceding paragraph (1) and the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 *of* September 24, 1965, so that such provisions will be binding upon each subcontract or vendor. The contractor will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such

direction by the administering agency the contractor may request the United States to enter into such litigation to protect the interests of the United States.

The applicant further agrees that it will be bound by the above equal opportunity clause with respect to its own employment practices when it participates in federally assisted construction work: Provided, that if the applicant so participating is a State or local government, the above equal opportunity clause is not applicable to any agency, instrumentality or subdivision *of* such government which does not participate in work on or under the contract.

The applicant agrees that it will assist and cooperate actively with the administering agency and the Secretary of Labor in obtaining the compliance of contractors and subcontractors with the equal opportunity clause and the rules, regulations, and relevant orders of the Secretary of Labor, that it will furnish the administering agency and the Secretary of labor such information as they may require for the supervision of such compliance, and that it will otherwise assist the administering agency in the discharge of the agency's primary responsibility for securing compliance.

The applicant further agrees that it will refrain from entering into any contract or contract modification subject to Executive Order 11246 of September 24, 1965, with a contractor debarred from or who has not demonstrated eligibility for, Government contracts and federally assisted construction contracts pursuant to the Executive order and will carry out such sanctions and penalties for violation of the equal opportunity clause as may be imposed upon contractors and subcontractors by the administering agency or the Secretary of Labor pursuant to Part II, Subpart D of the Executive order. In addition, the applicant agrees that if it fails or refuses to comply with these undertakings, the administering agency may take any or all of the following actions: Cancel, terminate, or suspend in whole or in part this grant (contract, loan, insurance, guarantee); refrain from extending any further assistance to the applicant under the program with respect to which the failure or refund occurred until satisfactory assurance of future compliance has been received from such applicant; and refer the case to the Department of Justice for appropriate legal proceedings.

408. STANDARD FEDERAL EQUAL EMPLOYMENT OPPORTUNITY CONSTRUCTION CONTRACT SPECIFICATIONS (EXECUTIVE ORDER 11246)

1. As used in these specifications:

   a. "Covered area" means the geographical area described in the solicitation from which this contract resulted:

   b. "Director" means Director, Office of Federal Contract Compliance Programs, United States Department of Labor, or any person to whom the Director delegates authority:

   c. "Employer identification number" means the Federal Social Security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941.

   d. "Minority" includes:

      (i) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);

      (ii) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);

      (iii) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and

      (iv) American Indian or Alaskan Native (all persons having origins in any of the

original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any Subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each Contractor or Subcontractor participating in an approved Plan is individually required to comply with its obligations under the EEO clause, and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other Contractors or Subcontractors toward a goal in an approved plan does not excuse any covered Contractor's or Subcontractor's failure to make good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7, a. through 7, p. of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. The Contractor is expected to make substantially uniform progress toward its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 1 1246, or the regulations promulgated pursuant thereto.

6. In order for the non-working training hours of apprentices and trainees to be counted in meeting the goals, the Contractor must employ such apprentices and trainees during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

    a. Ensure and maintain a working environment free of harassment, intimidation and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other on-site supervisory personnel are aware of and carry out the Contractor's obligations to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

    b. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

c. Maintain a current file of the name, addresses and telephone numbers of each minority and female off-the-street applicants and minority or female referrals from a union, a recruitment source or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, but not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

d. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

e. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of labor. The Contractor shall provide notice of these programs to the sources complied under paragraph 7, b. above.

f. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year, and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

g. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination or other employment decisions including specific review of these items with onsite supervisory personnel such as Superintendents, General Foremen, etc.; prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons offending, subject matter discussed, and disposition of the subject matter.

h. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other Contractors and Subcontractors with whom the Contractor does or anticipates doing business.

i. Direct its recruitment efforts, both oral and written, to minority, female and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and test to be used in the selection process.

j. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer and vacation employment to minority and female youth both on the site and in other areas of a Contractor's workforce.

k. Validate all test and other selection requirements where there is an obligation to do so under 41 CFR Part 60-3.

l. Conduct, at least annually, an inventory and evaluation of all minority and female personnel for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

m. Ensure that seniority practices, lob classifications, work assignments and other personnel practices, do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

n. Ensure that all facilities and company activities are non-segregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

o. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

p. Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations which assist in fulfilling one or more of their affirmative action obligations (7, a. through 7, p.). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the contractor is a member and participant, may be asserted as fulfilling any one or more of its obligations under 7, a. through 7, p. of these Specifications provided that the contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female work force participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex or national origin.

11. The Contractor shall not enter into any Subcontract with any person or firm debarred form Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any Contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employee related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government and to keep records. Records shall at least include for each employee the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

409. GOALS FOR FEMALE PARTICIPATION IN EACH TRADE

The following goals and timetables for female utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally assisted construction contract or subcontract.

Goals and timetables

Timetable	Goals
From April 1, 1980 to Date	6.9 %

Area covered: Goals for women apply nationwide

410.GOALS FOR MINORITY PARTICIPATION IN EACH TRADE

The following goals and timetables for minority utilization shall be included in all Federal and federally assisted construction contracts and subcontracts in excess of $10,000. The goals are applicable to the contractor's aggregate on-site construction workforce whether or not part of that workforce is performing work on a Federal or federally assisted construction contract or subcontract.

Goals and timetables

Timetable	Goals

Until further notice 3.1 %

Area covered: Political jurisdiction of the City of Terre Haute

411. STANDARD FORM 257 - EMPLOYMENT UTILIZATION REPORT

Each Contractor (both prime and subcontractors) is required to submit in accordance with the instructions provided, the following Monthly Employment Utilization Report - Standard Form #257.

Form ST-105
State Form 49065
(R5 / 6-17)

Indiana Department of Revenue

General Sales Tax Exemption Certificate

Indiana registered retail merchants and businesses located outside Indiana may use this certificate. The claimed exemption must be allowed by Indiana code. Exemption statutes of other states are not valid for purchases from Indiana vendors. **This exemption certificate can not be issued for the purchase of *Utilities*, *Vehicles*, *Watercraft*, or *Aircraft*.** Purchaser must be registered with the Department of Revenue or the appropriate taxing authority of the purchaser's state of residence.

Sales tax must be charged unless all information in each section is fully completed by the purchaser. Purchasers not able to provide all required information must pay the tax and may file a claim for refund (Form GA-110L) directly with the Department of Revenue. A valid certificate also serves as an exemption certificate for (1) county innkeeper's tax and (2) local food and beverage tax.

Section 1 (print only)

Name of Purchaser: Wabash Valley Health Center, Inc.

Business Address: 1436 Locust Street City: Terre Haute State: IN ZIP Code: 47807

Purchaser must provide minimum of one ID number below.*

Provide your Indiana Registered Retail Merchant's Certificate TID and LOC Number as shown on your Certificate.

TID Number (10 digits): 0144323788 - LOC Number (3 digits): 001

If not registered with the Indiana DOR, provide your State Tax ID Number from another State
***See instructions on the reverse side if you do not have either number.**

State ID Number: _____ State of Issue: _____

Section 2

Is this a ☑ blanket purchase exemption request or a ☐ single purchase exemption request? (check one)

Description of items to be purchased: materials, supplies, equipment and services for the operation of the health center

Section 3

Purchaser must indicate the type of exemption being claimed for this purchase. (check one or explain)

☐ Sales to a retailer, wholesaler, or manufacturer for **resale** only.

☐ Sale of manufacturing machinery, tools, and equipment to be used directly in direct **production**.

☑ Sales to **nonprofit organizations** claiming exemption pursuant to Sales Tax Information Bulletin #10. (May not be used for personal hotel rooms and meals.)

☐ Sales of tangible personal property predominately used (greater then 50 percent) in providing **public transportation** - provide USDOT Number. A person or corporation who is hauling under someone else's motor carrier authority, or has a contract as a **school bus operator**, must provide their SSN or FID Number in lieu of a State ID Number in Section 1.

USDOT Number: _____

☐ Sales to persons, occupationally engaged as farmers, to be used directly in production of **agricultural** products for sale. **Note:** A farmer not possessing a State Business License Number may enter a FID Number or a SSN in lieu of a State ID Number in Section 1.

☐ Sales to a **contractor** for exempt projects (such as public schools, government, or nonprofits).

☐ Sales to **Indiana Governmental Units** (agencies, cities, towns, municipalities, public schools, and state universities).

☐ Sales to the **United States Federal Government** - show agency name. _____
Note: A U.S. Government agency should enter its Federal Identification Number (FID) in Section 1 in lieu of a State ID Number.

☐ Other - explain. _____

Section 4

I hereby certify under the penalties of perjury that the property purchased by the use of this exemption certificate is to be used for an exempt purpose pursuant to the State Gross Retail Sales Tax Act, Indiana Code 6-2.5, and the item purchased is not a utility, vehicle, watercraft, or aircraft.

I confirm my understanding that misuse, (*either negligent or intentional*), and/or fraudulent use of this certificate may subject both me personally and/or the business entity I represent to the imposition of tax, interest, and civil and/or criminal penalties.

Signature of Purchaser: Charles Welker Date: January 24, 2019

Printed Name: Charles Welker Title: CEO

The Indiana Department of Revenue may request verification of registration in another state if you are an out-of-state purchaser.
Seller must keep this certificate on file to support exempt sales.

SECTION 01000 - GOVERNING CODES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

The work on this project is to comply with all of the governing codes stated herein.

1.2 GOVERNING CODES

1. All work shall be performed in accordance with the 2012 International Building Code as adopted by the State of Indiana and called the 2014 Indiana Building Code.

2. Additional codes adopted with amendments are the following:

   A. 2008 National Electrical Code as adopted by the State of Indiana and called the 2009 Indiana Electrical Code.
   B. 2012 International Mechanical Code as adopted by the State of Indiana and called the 2014 Indiana Mechanical Code.
   C. 2006 International Plumbing Code as adopted by the State of Indiana and called the 2012 Indiana Plumbing Code.
   D. 2012 International Fire Code as adopted by the State of Indiana and called the 2014 Indiana Fire Code.
   E. ASHRAE 90.1-2007 as adopted by the State of Indiana and called the 2010 Indiana Energy Conservation Code.

3. All work shall also be performed according to any city and county regulations or codes.

4. All trenching and excavations shall be properly designed by the Excavator in accordance with OSHA and IOSHA excavation regulations.

5. Job safety shall be adhered to by all Contractors on the project in accordance with OSHA and all governing bodies.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01005 - SUMMARY, ALLOWANCES, AND ALTERNATES

PART 1-GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The Project consists of the building additions & renovations located at the existing site owned by:
Wabash Valley Health Center, Inc.
1436 Locust Street
Terre Haute, Indiana 47807

Project Location:
Wabash Valley Health Center, Inc.
1436 Locust Street
Terre Haute, Indiana 47807

B. Contract documents dated September 11, 2019 were prepared by:

Michael R. Waldbieser
Engineering & Consulting, Inc.
19 South 6th Street, Suite 804
Terre Haute, Indiana 47807

C. The Work includes all labor, material, equipment, tools, and services required for the building additions & renovations on 1436 Locust Street as defined by the Contract Documents.
A listing of the major products and systems included in the Work is indicated by the Index in the Project Manual.

D. The Work will be completed under a single prime contract.

1.3 COORDINATION

A. General: The Contract includes coordination of entire work of project including preparation of general coordination drawings/diagrams/schedules, and control of site utilization; from the beginning of activity, through the project close-out and warranty periods.

B. The Owner will be occupying other portions of the building during construction. The contractor shall coordinate his activities during the term of the contract so as not to inconvenience the Owner and his operations any more than is necessary.

1.4 ALTERNATES

A. Definitions: Alternates are defined as alternate products, materials, equipment or systems for the work, which may, at Owner's option and under terms established by Instructions to Bidders, be selected and recorded in (Owner-Contractor Agreement) to either supplement or displace corresponding basic requirements of contract documents. Alternates may or may not substantially change scope and general character of the work; and must not be confused with "allowances", "unit prices", "change orders", "substitutions", and other similar provisions.

B. General Provisions: A "Schedule of Alternates" is included at end of this section. Each alternate is defined by abbreviated language, recognizing that drawings and specification sections document the requirements. Coordination of related work is required to ensure that work effected by each selected alternate is complete and properly interfaced with work of alternates.

1.5 ALLOWANCES

A. General: A "Schedule of Allowances", showing amounts included in each prime Contract Sum, is included at end of this section. Coordinate allowance work with related work, to ensure that each selection is completely integrated and interfaced with related work. Requirements for work of allowance are shown and specified to extent established by date of contract documents; additional requirements are established by change order. At earliest possible date, advise Architect/Engineer of date each final allowance selection must be completed. Submit proposals for allowance work as directed, and in a manner specified for change orders. Indicate quantities, unit costs, total purchase amounts, taxes, delivery charges and trade discounts. Where requested, furnish detailed breakdown of quantity survey. Contractor mark-up on overrun of allowance purchases will be permitted where purchase amount exceeds established allowance by more than 15%; otherwise, and except as otherwise indicated, amount of change order on each allowance will be difference between purchase amount and allowance. Deliver excess materials of allowance work to Owner's storage space, or dispose of by other means as directed.

B. Unit-Cost Allowances: Change Order amount will be difference between unit purchase amount and unit-cost allowance, multiplied by final measure or count of work-in-place, including reasonable margins for applicable cutting losses, tolerances, mixing wastes, product imperfections and similar margins. Owner reserves right to establish final measure or count of work-in-place by independent quantity surveyor.

1.6 CUTTING AND PATCHING

A. Definition: Includes cutting and patching of both previously existing work and nominally completed portions of Contract work. Excludes shop fabrication of work, and normal installation procedures including the drilling of holes to install fasteners. Excludes special categories, grading, planting, cleaning, removal/replacement of noncomplying work and similar activities; although some of these activities may require cutting and patching.

B. General: Specific requirements and limitations for cutting and patching are shown and specified for certain types of work, and specified in other sections of Division I

as required quality control procedures for general application to performance of the work.

1.7 PERFORMANCE REQUIREMENTS FOR COMPLETED WORK

A. General: The contract documents indicate intended occupancy and utilization of building or site and its individual systems and facilities. Compliance with governing regulations is intended and required, for the work and for Owner's occupancy and utilization.

1.8 DISPOSAL OF WASTE MATERIAL

A. All waste material and debris resulting from Work of this Contract shall be removed from the site by Contractor and disposed of in a legal manner.

1.9 SCHEDULING/LIQUIDATED DAMAGES

A. Construction shall commence within 10 calendar days of Notice to Proceed, and be completed within the time frame agreed upon by the Owner.

B No liquidated damages on this project.

1.10 SCHEDULE OF ALTERNATES

A. None on this project.

1.11 SCHEDULE OF ALLOWANCES

A. Section 04200 - Masonry (Brick Veneer Only)

B. 2nd Floor Existing Acoustical Ceiling Tile (which remains) replacement.

END OF SECTION

SECTION 01010 - SUMMARY OF WORK

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK AND DEFINITION OF PARTIES

A. The work described herein and illustrated on the accompanying drawings is to comprise all materials and labor for the General Construction and Demolition work as shown on the drawings and specified herein for this project.

B. Wherever the word "Owner" is used herein, it refers to:

Wabash Valley Health Center, Inc.
1436 Locust Street
Terre Haute, Indiana 47807

C. Wherever the word "Engineer" is used herein, it refers to Michael R. Waldbieser Engineering & Consulting, Inc., 19 South 6th Street, Suite 804, Terre Haute, Indiana 47807.

D. Wherever the word "Contractor" is used herein, it refers to the Contractor or Contractors for any part or parts of the work covered by these specifications and the accompanying drawings. The work will be completed under separate prime contracts as directed by the Owner.

1.2 SCOPE OF GENERAL CONDITIONS AND ALL CONTRACT DOCUMENTS

A. The General Conditions and all contract Documents shall govern in any subcontract made for any part or parts of the General Construction and Demolition work in this project.

1.3 COORDINATION

A. General: The Contract includes coordination of entire work of project including preparation of general coordination drawings/diagrams/schedules, and control of site utilization; from the beginning of activity, through the project close-out and warranty periods.

1.4 DUPLICATING

A. It is understood that work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places on other drawings, is to be repeated.

1.5 CUTTING, PATCHING AND DIGGING

A. Each Prime Contractor shall do all cutting, fittings, or patching of his work that may be required to make its several parts come together properly and fit to work with other Contractors, as shown or reasonably implied by the drawings and specifications, or as the Engineer and Owner may direct.

B. Any cost of defective or ill-time work shall be borne by the party responsible therefore.

C. Contractor shall not endanger any work cutting, digging, or otherwise and shall not cut or alter the work of any Contractor except with the consent of the Engineer and Owner.

1.6 DIVISION OF WORK

A. All mechanical, ventilating, electrical "rough-in", and final connection for equipment, shall be done by the respective Contractor for that work from drawings furnished, unless otherwise specifically noted.

1.7 VERIFYING MEASUREMENTS

A. The Contractor shall verify all measurements and be responsible for mistakes he may make and their result. If the Contractor discovers any discrepancy, in figures on the drawings, he shall report same to the Engineer before proceeding with any work affected by the discrepancy, and shall be held responsible for results should he fail to make such report.

1.8 PERFORMANCE REQUIREMENTS FOR COMPLETED WORK

A. General: The contract documents indicate intended occupancy and utilization of building or site and its individual systems and facilities. Compliance with governing regulations is intended and required, for the work and for Owner's occupancy and utilization.

1.9 DISPOSAL OF WASTE MATERIAL

A. All waste material and debris resulting from Work of this Contract shall be removed from the site by Contractor and disposed of in a legal manner.

1.10 SCHEDULING/LIQUIDATED DAMAGES

A. Construction shall commence within the time frame presented by the Owner.

1.11 WORK IN THIS CONTRACT

A. It is the intent of this Section to outline the main work items included in this Contract, not all work items, so the Contractor can have an overview of the scope of the project.

B. Construct the new building additions and existing building renovations as shown on the drawings and as referenced in the specifications at the site shown on the site plan.

C. Exterior drainage installation and grading to properly remove surface water as shown on the site plan.

D. Install site work as shown on the drawings.

1.12 DEMOLITION

A. All demolition work shall be done in a workman like manner in order cause no more disturbance to operations than absolutely necessary. Coordinate demolition with the Contact.

B. All debris to be removed from site by contractor except for those items stated on the drawings which are to be removed and taken to a designated area for storage and remain the property of the owner.

C. Refer to "Instructions to Bidders" for additional information.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01030 - ALLOWANCES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

A. Include in the Contract Sum all allowances stated in the Contract Documents.

1.2 ALLOWANCES FOR PRODUCTS

A. The amount of each allowance includes:

1. The cost of the product to the Contractor, less any applicable trade discounts.

2. Labor required under the allowance, only when labor is specified to be included in the allowance.

B. In addition to the amount of each allowance, include in the Contract Sum the Contractor's cost for:

1. Delivery to the site, if freight is not included in the allowance.

2. Handling at the site; including unloading, uncrating, and storage.

3. Protection from the elements and from damage.

4. Labor for installation and finishing, except where labor is specified to be a part of the allowance.

5. Applicable taxes, if taxes are not included in allowance.

6. Other expenses required to complete the installation.

7. Contractor's and sub-contractor's overhead and profit.

C. If taxes and freight are included in an allowance, it will be so stated.

1.3 SECTION 4200 - EXTERIOR BRICK VENEER

A. Face Brick shall be as selected by the Owner and agreed upon by the Contractor.

B. The brick facing of exposed surfaces of the exterior and interior walls shall be the best quality hard-burned vitrified face brick, conforming to ASTM 216, latest revision. The Contractor shall figure the face brick at $630.00 per 1000 f.o.b. the site, for the purpose of making up proposals. The brick to be used will be selected by the Engineer and the Owner after the award of the Contract. Should brick selected cost more than $630.00 per 1000 f.o.b. the site, the difference between this amount and the actual cost of the brick selected will be added to the Contractor's price of the work. Should the brick selected cost less than $630.00 per 1000 f.o.b. the site, the difference between this

amount and the actual cost of the brick selected will be deducted from the Contractor's price for the work. No increase in the Contractors overhead or profit will be allowed regardless of the amount spent on this section of work. The Contractor shall submit estimated quantity of brick in the bid documents.

C. Mortar - Type as specified by Code for usage type.

D. Masonry ties per drawing sections and stated in written specifications.

E. When all work has been completed on the building, the contractor shall clean down all exposed masonry.

1.4 ACOUSTICAL CEILING TILE REPLACEMENT ON 2ND FLOOR (EXISTING AREAS ONLY TO REMAIN.)

A. The Contractor shall include in his bid an allowance for acoustical ceiling tile and grid replacement and re-work in existing 2nd floor areas which has acoustical ceiling tile which is not schedule to be replaced.

B. The Contractor shall include in his bid an allowance of $2,000.00 for the material and installation for acoustical ceiling re-work/replacement. Should work selected cost more than $2,000.00 , the difference between this amount and the actual cost of the work selected will be added to the Contractor's price of the work. Should the work selected cost less than $2,000.00, the difference between this amount and the actual cost of the work selected will be deducted from the contractor's price for the work. No increase in the Contractors overhead or profit will be allowed regardless of the amount spent on this section of work.

1.5 SELECTION OF PRODUCTS UNDER ALLOWANCES

A. Engineers Duties:

1. Make selection in consultation with Owner.
2. Transmit Owner's decision to the Contractor.

B. Contractor's Duties.

1. Obtain proposals from supplier and installers.
2. Notify the Engineer of any effect on the Construction Schedule anticipated by selections under consideration.
3. Submit copies of invoices from sub-contractors on all allowance items with payment requests. At that time change orders will then be issued if required.
   No payment on allowance items will be made without copies of invoices submitted with payment requests.

1.6 CONTRACTOR RESPONSIBILITY FOR PURCHASE, DELIVERY AND INSTALLATION

A. On notification of selection, execute purchase agreement with designated supplier.

B. Make arrangements for delivery.

C. Upon delivery, promptly inspect products for damage or defects.

D. Submit claims for transportation damage.

END OF SECTION

SECTION 01068 - REFERENCE STANDARDS AND DEFINITIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

A. General: Basic Contract definitions are included in the General and Supplementary Conditions and other Division I Specification sections; apply to work of this section.

1.2 DEFINITIONS

A. General: Basic Contract definitions are included in the General Conditions.

B. Indicated: The term "indicated" refers to graphic representatives, notes, or schedules on the Drawings, other Paragraphs of Schedules in the Specifications, and similar requirements in the Contract Documents. Where terms such as "shown", "noted", "scheduled" are used, it is to help the reader locate the reference; no limitation on location is intended.

C. Directed: Terms such as "directed", "requested", "authorized", "selected", “approved", “required” , and "permitted", mean "directed by the Engineer", "requested by the Engineer", and similar phrases.

D. Approved: The term "approved", where used in conjunction with the Engineer’s action on the Contractor's submittals, applications, and requests, is limited to the Engineer’s duties and responsibilities as stated in the Conditions of the Contract.

E. Or an Approved Equal: The phrase "or an approved equal" means a product or material for which a request for approval was made and for which the Engineer's approval was granted prior to receipt of bids.

F. Regulations: 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.

G. Furnish: The term "furnish" is used to mean "supply and deliver to the Project site, ready for unloading, unpacking, assembly, installation, and similar operations."

H. 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."

I. Provide: The term "provide" means "to furnish and install, complete and ready for intended use."

J. Installer: An "Installer" is the Contractor or an entity engaged by the Contractor, either as an employee, subcontractor, or contractor of lower tier 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.

1. The term "experienced" when used with the term "Installer" means having a minimum of five previous project similar in size and scope to this project, being familiar with the special requirements indicated, and having complied with requirements of the authority having jurisdiction.

2. 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.

3. Assignment of Specialist: Certain Sections of the Specifications require that specific construction activities shall be performed by specialists who are recognized experts in the operations to be performed. The specialists must be engaged for those activities, and assignments are requirements over which the Contractor has no choice or option. Nevertheless, the ultimate responsibility for fulfilling Contract requirements remains with the Contractor.

    a. This requirement shall not be interpreted to conflict with enforcement of building codes and similar regulations governing the work. It is also not intended to interfere with local trade union jurisdiction settlements and similar conventions.

K. Project Site is the space available to the Contractor for performance of construction activities, either exclusively or in conjunction with others performing other work 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.

L. Testing Laboratories: A "testing laboratory" is an independent entity engaged to perform specific inspections or tests, whether at the Project Site or elsewhere, and to report on and, if required, to interpret results of those inspections or tests.

1.3 SPECIFICATION FORMAT AND CONTENT EXPLANATION

A. Specification Format: These Specifications are organized into Divisions and Sections based on the Construction Specifications Institute's 16-Division Format and MASTERFORMAT numbering system.

1. Abbreviated Language: Language used in Specifications and other Contract Documents is the abbreviated type. Words that are implied, but not stated shall be interpolated as the sense required. Singular words interpreted as singular where applicable and the content of the Contract Documents so indicates.

2. Imperative and streamlined language is used generally in the Specifications. Requirements expressed in the imperative mood are to be performed by the Contractor. At certain locations in the text, for clarity, subjective language is used to describe responsibilities that must be fulfilled indirectly by the Contractor, or by others when so noted.

    a. The words "shall be" shall be included by inference wherever a colon (:) is used within a sentence or phrase.

1.4 INDUSTRY STANDARDS

A. Applicability of Standards: Except where the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents. Such standards are made a part of the Contract Documents by reference.

B. Publication Dates: Comply with the standard in effect as of the date of the Contract Documents.

C. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the Engineer for a decision before proceeding.

1 . Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. In complying with these. requirements, indicated numeric values are minimum or maximum, as appropriate for the content of the requirements. Refer uncertainties to the Engineer for a decision before proceeding.

D. Copies of Standards: Each entity engaged in construction on the project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

1 . Where copies of standards are needed for performance of a required construction activity, the Contractor shall obtain copies directly from the publication source.

E. Abbreviations and Names: Trade association names and titles of general standards are frequently abbreviated. Where such acronyms or abbreviations are used in the Specifications or other Contract Documents, they mean the recognized name of the trade association, standards generating organization, authority having jurisdiction, or other entity applicable to the context of the text provision. Refer to the "Encyclopedia of Associations," published by Gale Research Co., available in most libraries.

1.5 GOVERNING REGULATIONS/AUTHORITIES

A. The Engineer has contacted authorities having jurisdiction where necessary to obtain information necessary for preparation of Contract Documents. Contact authorities having jurisdiction directly for information and decisions having a bearing on the work.

1.6 SUBMITTALS

A. Permits, Licenses, and Certificates: For the Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, and similar documents, correspondence, and records established in conjunction with compliance with standards and regulations bearing upon performance of the work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01090 - CODES, REGULATIONS, AND STANDARDS FOR ASBESTOS ABATMENT

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

Drawings and general provisions of this Contract, including General and Supplementary Conditions and other Division One Specifications Sections, apply to this Section.

1.2 SUMMARY

This Section sets forth governmental regulations and industry standards which are included and incorporated herein by reference and made a part of the specifications. This section also sets forth those notices and permits which are known to the Owner and which either must be applied for and received, or which must be given to governmental agencies before start of work.

A. Requirements include adherence to work practices and procedures as set forth in applicable Codes, regulations and standards.
B. Requirements include obtaining permits, licenses, inspections, releases and similar documentation, as well as payments, statements and similar requirements associated with Codes, Regulations, and Standards.

1.3 GENERAL APPLICABILITY OF CODES, REGULATIONS, AND STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the contract documents, all applicable Codes, Regulations, and Standards have the same force and effect (and are made a part of the contract documents by reference) as if copied directly into the contract documents, or as if published copies are bound herewith.

1.4 CONTRACTOR RESPONSIBILITY

The Contractor shall assume full responsibility and liability for the compliance with all applicable Federal, State, and Local regulations pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor is responsible for providing medical examinations and maintaining medical records of personnel as required by the applicable Federal, State, and Local regulations. The Contractor shall hold the Owner and the Owner's Representative harmless for failure to comply with any applicable work, hauling, disposal, safety, health or other regulations on the part of himself, his employees, or his sub-contractors.

1.5 FEDERAL REQUIREMENTS

Federal Requirements which govern asbestos Abatment work or hauling and disposal of asbestos waste materials are herein made a requirement of this specification.

1.6 OSHA

The U.S. Department of Labor, Occupational Safety and Health Administration, (OSHA), including but not limited to:

A. Occupational exposure to asbestos, tremolite, anthophyllite, and actinolite. Final Rules Title 29, Part 1910, Section 1001 and Part 1926, Section 58 of the Code of Federal Regulations.

B. Respiratory Protection, Title 29, Part 1910, Section 134 of the Code of Federal Regulations.
C. Construction Industry, Title 29, Part 1926, of the Code of Federal Regulations.
D. Access to Employee Exposure and Medical Records Title 29, Part 1910, Section 2 of the Code of Federal Regulations.
E. Hazard Communication, Title 29, Part 1910, Section 1200 of Code of Federal Regulations.
F. Specifications for Accident Prevention Signs and Tags Title 29, Part 1910, Section 145 of the Code of Federal Regulation.
G. Latest and most recent versions of all of the above reference Regulations and new regulations not listed above are herein a requirement of this specification.

1.7 DOT

U.S. Department of Transportation, including but not limited to:

A. Hazardous Substances, Title 29, Part 171 and 172 of the Code of Federal Regulations.

1.8 EPA

U.S. Protection Agency (EPA), including but not limited to:

A. Asbestos Hazard Emergency Response Act (AHERA) Regulation Asbestos Containing Materials in Schools Final Rule & Notice Title 40, Part 763, Sub-Part "E" of the Code of Federal Regulations.
B. Training Requirements of (AHERA) Regulation, Asbestos Containing Materials in Schools Final Rule & NOtice, Title 40, Part 763, Sub-Part "E", Appendix "C" of the Code of Federal Regulations.
C. National Emission Standard for Hazardous Air Pollutants (NESHAPS) Nations Emission Standard for Asbestos Title 40, Part 61, Sub-Part "A", and Sub-Part "M" (Revised Sub-Part "B") of the Code of Federal Regulations.
D. Latest and most recent versions of all of the above reference Regulations and new Regulations not listed above are herein a requirement of this specification.

1.9 STATE REQUIREMENTS

State Requirements which govern asbestos Abatment work or hauling and disposal of asbestos waste materials include but are not limited to the following:

A. INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM)
Office of Air Management (OAM) Asbestos Section
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

B. INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (IDEM)
Office of Solid & Hazardous Waste Management
105 South Meridian Street
P.O. Box 6015
Indianapolis, Indiana 46206-6015

1.10 LOCAL REQUIREMENTS

Abide by all Local requirements which govern asbestos Abatment work or hauling and disposal of asbestos waste materials.

1.11 GENERAL APPLICABILITY OF STANDARDS

Except to the extent that more explicit or more stringent requirements are written directly into the Contract Documents, all applicable standards have the same force and effect (and are made a part of the Contract Documents by reference) as if copied directly into the Contract Documents, or as if published copies are bound herewith.

1.12 CONTRACTOR RESPONSIBILITY

The Contractor shall assume full responsibility and liability for the compliance with all standards pertaining to work practices, hauling, disposal, and protection of workers, visitors to the site, and persons occupying areas adjacent to the site. The Contractor shall hold the Owner and the Owner's Representative harmless for failure to comply with any applicable standard on the part of himself, his employees, or his sub-contractor.

1.13 NOTIFICATION

Send written notification as required by the State and Local Regulations prior to beginning any work on asbestos-containing materials.

1.14 LICENSES

Maintain current licenses as required by applicable State or Local jurisdictions for the removal, transporting, disposal, or other regulated activity relative to the work of this contract.

1.15 POSTING AND FILING OF REGULATIONS

Post all notices required by applicable Federal, State, and Local Regulations. Maintain two (2) copies of applicable Federal, State, and Local Regulations and Standards. Maintain one copy of each at the job site. Keep on file in Contractor's Office one copy of each.

PART 2: PRODUCTS: Not Applicable.

PART 3: EXECUTION: Not Applicable.

SECTION 01300 - SUBMITTALS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. The types of submittal requirements specified in this section include shop drawings, product data, samples and miscellaneous work-related submittals. Individual submittal requirements are specified in applicable sections for each unit of work. Refer to other Division I sections and other contract documents for requirements of administrative submittals.

B. Definitions: Work-related submittals of this section are categorized for convenience as follows:

1. Shop drawings include specially-prepared technical data for this project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements and similar information not in standard printed form for general application to a range of similar projects.

2. Product data include standard printed information on materials, products and systems; not specially-prepared for this project, other than the designation of selections from among available choices printed herein.

3. Samples include both fabricated and unfabricated physical examples of materials, products and units of work; both as complete units and as smaller portions of units of work; either for limited visual inspection or (where indicated) for more detailed testing and analysis.

4. Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.

5. Miscellaneous submittals related directly to the work (non-administrative) include warranties, maintenance agreements, workmanship bonds, project photographs, survey data and reports, physical work records, quality testing and certifying reports, copies of industry standards, record drawings, field measurement data, operating and maintenance materials, overrun stock, and similar information, devices and materials applicable to the work and not processed as shop drawings, product data or samples.

1.3 GENERAL SUBMITTAL REQUIREMENTS

A. Timing of Submittals: All required submittals shall be made in a timely manner so that as not to delay the progress of the project, but in no case shall they be made more than 30 days after award of the contract.

B. Preparation of Submittals: Provide permanent marking on each submittal to identify project, date, Contractor, subcontractor, submittal name and similar information to distinguish it from other submittals. Show Contractor's executed review and approval marking and provide space for Architect's/Engineer's "Action" marking. Package each submittal appropriately for transmittal and handling. Submittals which are received from sources other than through Contractor's office will be returned by A/E "without action".

Transmittal Form: Contractor's standard transmittal form.

Provide Contractor's certification on form, ready for execution, stating that information submitted complies with requirements of contract documents.

1.4 SPECIFIC-CATEGORY SUBMITTAL REQUIREMENTS

A. General: Except as otherwise indicated in individual work sections, comply with requirements specified herein for each indicated category of submittal. Provide and process intermediate submittals, where required between initial and final, similar to initial submittals.

B. Shop Drawings: Provide newly-prepared information, on reproducible sheets, with graphic information at accurate scale (except as otherwise indicated), with name of preparer indicated (firm name). Show dimensions and note which are based on field measurement. Identify materials and products in the work shown. Indicate compliance with standards, and special coordination requirements. Do not allow shop drawing copies without appropriate final "Action" markings by Engineer to be used in connection with the work.

1 . Initial Submittal: One correctable translucent reproducible print and one blueline or black-line print; reproducible will be returned.

C. Product Data: Collect required data into one submittal for each unit of work or system; and mark each copy to show which choices and options are applicable to project. Include manufacturer's standard printed recommendations for application and use, compliance with standards, application of labels and seals, notation of field measurements which have been checked, and special coordination requirements. Maintain one set of product data (for each submittal) at project site, available for reference by Architect/Engineer and others.

1 . Submittals: Do not submit product data, or allow its use on the project, until compliance with requirements of contract documents has been confirmed by Contractor. Submittal is for information and record, unless otherwise indicated. Initial submittal is final submittal unless returned promptly by Architect/Engineer, marked with an "Action" which indicates an observed non compliance. Submit 5 copies, 3 copies will be returned for contractor's use and where required for maintenance manuals.

D. Samples: Provide units identical with final condition of proposed materials or products for the work. Include "range" samples (not less than 3 units) where unavoidable variations must be expected, and describe or identify variations between units of each set. Provide full set of optional samples where Architect's/Engineers selection is required. Prepare samples to match Architect's/Engineer's sample where so indicated. Include information with each sample to show generic description, source or product

name and manufacturer, limitations, and compliance with standards. Samples are submitted for review and confirmation of color, pattern, texture and "kind" by Architect/Engineer. Architect/Engineer will not "test" samples (except as otherwise indicated) for compliance with other requirements, which are therefore the exclusive responsibility of Contractor.

1. Submittal: Provide submittal of 3 sets of samples for Architect's/Engineer's review and "Action". Two sets will be returned. Maintain one set of samples at the job site.

E. Mock-Ups: Mock-ups and similar submittal of 3 sets of samples for Architect's/Engineer's review and "Action". Two sets will be returned. Maintain one set of samples at the job site.

F. Inspection and Test Reports: Classify each as either "shop drawing" or "product data", depending upon whether report is uniquely prepared for project or a standard publication of workmanship control testing at point of production; process accordingly.

G. Warranties: Refer to "Products" section for specific general requirements on warranties, product/workmanship bonds, and maintenance agreements. In addition to copies desired for Contractor's use, furnish 2 executed copies, except furnish 2 additional (conformed) copies where required for maintenance manuals. Refer to Mechanical and Electrical Sections.

H. Closeout Submittals: Refer to individual work sections and to "closeout" sections for specific requirements on submittal of closeout information, materials, tools and similar items.

Record Document Copies: Furnish one set.

Maintenance/Operating Manuals: Furnish 2 bound copies.

1. Materials and Tools: Refer to individual work sections for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys, and similar physical units to be submitted.

I. General Distribution: Provide additional distribution of submittals (not included in foregoing copy submittal requirements) to subcontractors, suppliers, fabricators, installers, governing authorities and others as necessary for proper performance of the work. Include such additional copies in transmittal to Architect/Engineer where required to receive "Action" marking before final distribution. Record distributions on transmittal forms.

1.5 ACTION ON SUBMITTALS

A. Except for submittals for the record or for information, where action and return of submittals is required, the Architect or Engineer will review each submittal, mark to indicate the action taken, and return.

1. Do not permit submittals marked "Revise and resubmit" or "Rejected" to be used in the Work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01310 - COORDINATION AND EXPEDITING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 MEETINGS

It shall be an obligation of the Contractors to attend a meeting with the Owner and Engineer as directed by Engineer, during the entire life of the project for the purpose of expediting the work and considering other matters pertaining thereto. Notice of said meetings to originate in the office of the Engineer. Contractor to require his principal Subcontractors to attend.

1.2 PROGRESS SCHEDULE

After award of contract, prime contractors cooperatively shall submit for approval a progress schedule. This schedule shall be worked out and agreed upon by the prime contractors and is intended to act as a means of obtaining closer cooperation and coordination between all contractors involved. The schedule shall be based on work days. It should be remembered that time must be allotted for shop drawings and decisions involving Engineer and Owner.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01340 - SHOP DRAWINGS, PRODUCT DATA, & SAMPLES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for submittal of Shop Drawings Product Data and Samples.

1.3 SUBMITTAL PROCEDURES

A. Contractor Reviews: The Contractor shall review and approve all submittals before transmitting them to the Architect/Engineer. Each submittal shall bear the approval stamp of the Contractor or they will be returned by the Architect/Engineer unchecked.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal to the Architect/Engineer sufficiently in advance of scheduled performance of related construction activities to avoid delay. The Architect/Engineer will then review the submittals or send them on to the appropriate consulting Engineer for review.

1 . Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for re-submittals

2. Submit only the shop drawings, product data, and samples called for in the technical Sections. Any other shop drawings, product data, or samples submitted will be returned unchecked.

C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal to the Architect/Engineer and to other destinations by use of a transmittal form. The Architect/Engineer will return submittals received from sources other than the Contractor.

1 . Record relevant information and requests for data on the transmittal form. On the form, or an attached separate sheet, record deviations from requirements of the Contract Documents, including minor variations and limitations.

2. Include the Contractor's certification stating that information submitted complies with requirements of the Contract Documents.

1.4 SHOP DRAWINGS

A. Submit newly prepared information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard printed information as the basis of Shop Drawings.

1. Include the following information on Shop Drawings:

a. Dimensions.
b. Identification of products and materials included.
c. Compliance with specified standards.
d. Notation of coordination requirements
e. Notation of dimensions established by field measurement.

2. Submit Coordination Drawings where required for integration of different construction elements. Show construction sequences and relationships of separate components where necessary to avoid conflicts in utilization of the space available.

3. Highlight, encircle, or otherwise indicate deviations from the Contact Documents on the Shop Drawings.

4. Do not allow Shop Drawing copies that do not contain an appropriate final stamp or other marking indicating the action taken by the Architect or Engineer to be used in construction.

5. Submittal: Submit 1 reproducible copy and 2 additional blue line or black line prints of each shop drawing. The 2 prints marked with the action taken by the Architect or Engineer will be retained and the reproducible copy will be returned to the Contractor. The Contractor should then make copies from the reproducible that bears the action stamp as suits his needs, including a copy required for Project Record Documents.

1.5 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Mark each copy to show which choices and options are applicable to the Project.

1 . Include the following information in Product Data:

a. Manufacturer's printed recommendations.
b. Compliance with recognized trade association standards.
c. Compliance with recognized testing agency standards.
d. Application of testing agency labels and seals.
e. Notation of dimensions verified by field measurement.

B. Submittals: Submit 5 copies of each required Product Data submittal. Two copies marked with the action taken by the Architect or Engineer will be retained, and the balance will be returned to the Contractor.

1.6 SAMPLES

A. Submit 12" x 12", fully fabricated Samples, cured and finished in the manner specified, and physically identical with the material or product proposed for use.

1 . Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed.

a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented by a Sample, submit at least 3 multiple units that show approximate limits of the variations.

B. Submittals: Except for Samples intended to illustrate assembly details, workmanship, fabrication techniques, connections, operation, and other characteristics, submit 3 sets of Samples. One set will be returned marked with the action taken.

1.7 ARCHITECT'S/ENGINEER'S ACTION

A. Except for submittals for the record or for information, where action and return of submittals is required. The Architect or Engineer will review each submittal, mark to indicate the action taken, and return.

1 . Do not permit submittals marked "Revise and resubmit" or "Rejected" to be used in the Work.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND PROTECTION

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Specific administrative and procedural minimum actions are specified in this section, as extension of provisions in General Conditions and other documents. These requirements have been included for special purposes as indicated. Nothing in this section is intended to limit types and amounts of temporary work required, and no omission from this section will be recognized as an indication by Architect or Engineer that such temporary activity is not required for successful completion of the work and compliance with requirements of contract documents. Provisions of this section are applicable to, but not by way of limitation, utility services, construction facilities, security/protection provisions, and support facilities.

1.3 QUALITY ASSURANCE

A. General: In addition to compliance with governing regulations and rules/ recommendations of franchised utility companies, comply with specific requirements indicated and with applicable local industry standards for construction work (published recommendations by local consensus "building councils").

B. OSHA: Contractors shall comply with Williams-Steiger, Occupational Safety & Health Act of 1970, Part 1926 (Formerly 1518), Safety & Health Regulations for Construction, Subpart H1926.250 and as amended thereafter.

Comply with Subpart E, 1926.100 through 1926.107 (1518.100 through 1518.107) Subpart H, 1926.251 (1518.251), Subpart I 1926.300 through 1926.305 (1518.300 through 1518.305) Subpart L 1926.450 through 1926.452 (1518.450 through 1518.452) Subpart N 1926.550 through 1926.555 (1518.550 through 1518.555) Subpart O 1926.600 through 1926.606 (1518.600 through 1518.606) of Safety & Health Regulations.

1.4 JOB CONDITIONS

A. Conditions of Use: Install, operate, maintain and protect temporary facilities in a manner and at locations which will be safe, non-hazardous, sanitary and protective of persons and property, and free of deleterious effects.

B. Each Contractor shall supply all tools, machinery, centers, hoists, derricks, etc. as required for the complete and satisfactory execution of his work. Each contractor shall provide all guys and anchorage for such apparatus and structures and shall be responsible for any unsafe work in connection with the same.

1.5 TEMPORARY UTILITY SERVICES

A. The types of services required include, but not by way of limitation, water, electrical power and telephone. Contact local utilities for required services during construction.

B. Potable Water: Contractors may use current water supply system in the building at no cost to the Contractors.

C. Temporary Power: Contractors may use current electrical system in the building at no cost the Contractor.
All tools, extension cords, and equipment provided by the General Contractor.
Each contractor and/or subcontractor shall furnish any necessary wiring and extension cords to reach from the nearest outlet to his point of operation.

If any contractor requires additional power for use of tools, it will be their responsibility to make these arrangements with the Electrical Contractor.

All elements of the temporary service shall conform to the regulations of the National Electric Code, the National Electric Safety Code and the Safety Code for the Construction Industry, and Part 1926 Safety & Health Regulations for Construction and as amended thereafter.

No permanent power from permanent sources shall be used without the Owner's written permission indicating the conditions whereby it may be used. Consideration will not be given for the use of lights, wiring devices, or other electric equipment until the building is in the finishing stages, or unless it is in the Owner's interests.

1.6 TEMPORARY CONSTRUCTION FACILITIES

A. The types of temporary construction facilities required include, but not by way of limitation, water distribution, heat, ventilation, and electrical power distribution. Provide facilities reasonable required to perform construction operations properly and adequately.

B. Lighting: Provide sufficient temporary lighting to ensure proper workmanship everywhere by combined use of daylight and portable plug-in task lighting. Provide general lighting with local switching which will enable energy conservation during periods varying activity (work-in-progress, traffic only, security check, lock-up, etc.).

1.7 SECURITY/PROTECTION PROVISIONS

A. The types of temporary security and protection provisions required include, but not by way of limitation, fire protection, barricades, warning signs/lights, building enclosure/lockup, personnel security program (theft prevention), environmental protection, and similar provisions intended to minimize property losses, personal injuries and claims for damages at project site.

B. Fire Extinguishers: Provide types, sizes, numbers and locations as would be reasonably effective in extinguishing fires during early stages, by personnel at project site. Provide Type A Extinguishers at locations of low-potential for either electrical or grease-oil-flammable liquids fires; provide Type ABC dry chemical extinguishers at other locations; comply with recommendations of NFPA No. 10. Post warning and quick instructions at each extinguisher location, and instruct personnel at project site, at time of their first arrival, on proper use of extinguishers

and other available facilities at project site.

C. Non-Working Hours: All temporary facilities or equipment which would permit unauthorized persons access to the construction area, or building, or roof shall be removed from the site or shall be secured to be unusable during periods when work is not in progress.

D. Protection of Work: The General Contractor shall well in advance of lathing, plastering, painting and finishing operations, provide cloth or plastic covered frames for window openings and hinged plywood or batten doors with locks to maintain temperatures necessary to perform the work.

The General Contractor shall provide protection against all kinds of weather so that the building and materials will not be damaged. During cold weather, he shall provide protection at door and window openings.

The work of any Contractor damaged because of failure of the General Contractor to provide the protection above required shall be removed and replaced with new work at the General Contractor's expense.

Each Prime Contractor shall protect his excavations, trenches and structures from damage from rain water, ground water, backing-up of drains and sewers, and from all other water. Provide pumps, equipment and enclosures to provide protection for his own work.

1.8 TEMPORARY SUPPORT FACILITIES

A. The types of temporary support facilities required include, but not by way of limitation, storage sheds, fabrication sheds first aid facilities, signs, clean-up facilities waste disposal service, rodent/pest control and similar miscellaneous general services, all as may be reasonably required for proficient performance of the work and accommodation of persons, at the site including Owner's and Architect's/Engineer's personnel. Discontinue and remove temporary support facilities, and make incidental similar use of permanent work of the project, only when and in manner authorized by Architect/Engineer; and, if not otherwise indicated, immediately before time of substantial completion. Locate temporary support facilities for convenience of users, and for minimum interference with construction activities.

B. Contractor's Field Office: Contractor's temporary field office is not required. If one is provided, locate as directed by Owner.

1 . Contractor shall provide telephones for emergency calls by either providing an office equipped with a telephone or providing a mobile telephone.

C. Temporary Sheds: Contractor shall provide any temporary sheds he needs for storage, fabrication and similar purposes. Locate as directed by Owner.

D. Sanitary Facilities: Contractor shall provide toilets he needs for sanitation. (Single occupant self-contained chemical toilet units, properly vented and fully enclosed with fiber reinforced polyester shell or similar non-absorbent material.) Provide separate toilet facilities for male and female construction personnel when both sexes are employed on site.

E. Cleaning and Trash Removal: Contractor shall provide waste containers sufficient

for the deposit of non-hazardous/non-toxic waste materials. Remove such waste materials from the project site at least twice weekly during mild and warm weather (daily high temperatures above 50 degrees F). Remove not less than weekly during periods when daily high temperatures are at or below 50 degrees F.

F. Temporary Walks, Stairs, Ladders, Ramps, and Runways: General Contractor shall furnish and maintain all equipment such as temporary stairs, ramps, chutes, etc. as required for proper execution of the work by all trades, except where specifically mentioned that above is to be furnished and maintained under divisions or sections of contract as hereinafter specified. All above shall comply with Subpart L, 1926.450 through 1926.452 (1518.450 through 1518.452) & Subpart M, 1926.500 through 1926.502 (1518.500 through 1518.502) of Safety & Health Regulations for Construction.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01605 - PRODUCTS AND SUBSTITUTIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1. 1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: "Products" is defined to include purchased items for incorporation into the work, regardless of whether specifically purchased for project or taken from Contractor's stock of previously purchased products. "Materials", is defined as products which must be substantially cut, shaped, worked, mixed, finished, refined or otherwise fabricated, processed, installed or applied to form units of work. "Equipment" is defined as products with operational parts, regardless of whether motorized or manually operated, and particularly including products with service connections (wiring, piping, etc.). Definitions in this paragraph are not intended to negate the meaning of other terms used in contract documents, including "specialties", "systems", "structure", "finishes", "accessories", "furnishings", “special construction", and similar terms, which are self-explanatory and have recognized meanings in the construction industry.

B. Substitutions: The requirements for substitutions do not apply to specified Contractor options on products and construction methods. Revisions to contract documents, where requested by Owner, Architect or Engineer, are "changes" not "substitutions". Requested substitutions during bidding period, which have been accepted prior to Contract Date, are included in contract document and are not subject to requirements for substitutions as specified herein. Contractor's determination of and compliance with governing regulations and orders issued by governing authorities do not constitute "substitutions"; and do not constitute a basis for change orders, except as provided for in contract documents. Otherwise, Contractor's requests for changes in products, materials and methods of construction required by contract documents are considered requests for "substitutions", and are subject to requirements hereof.

C. Standards: Refer to Division I section "Definitions and Standards" for applicability of industry standards to products of project, and for acronyms used in text of specification sections.

1.3 QUALITY ASSURANCE

A. Source Limitations: To the greatest extent possible for each unit of work, provide products, materials or equipment of a singular generic kind from a single source.

B. Finish Materials: Finish materials installed within a single room or area or within contiguous areas, or on the exterior, shall be from a single production run to assure color/pattern/finish consistency. Color, pattern, or finish variations, not represented by the approved samples and judged by the Architect/Engineer to be objectionable will result in rejection of the material, without regard for whether the variations are caused by inter-mixing of materials from more than one production run, or by Installer not

following manufacturer's instructions for blending of material from a single production rim. This paragraph relates to both exterior and interior finish materials.

C. Compatibility of Options: Where more than one choice is available as options for Contractor's selection of a product or material, select an option which is compatible with other products and materials already selected (which may have been from among options for those other products and materials). Compatibility is a basic general requirement of product/material selections.

D. Approved or Acceptable Manufacturers: The specification sections may identify acceptable or approved manufacturers with a paragraph which states the following, or words of the same effect:

Subject to compliance with requirements, provide products of one of the following:

The manufacturers listed are those that are believed to provide products of acceptable and comparable quality and which satisfy the requirements of the specifications. Since manufacturers, from time to time, change the quality of their products, some manufacturer's products may not conform to the requirements of the specifications. Those manufacturers are hereby advised that specification requirements will not be waived to accept their products simply because they were named as an acceptable or approved manufacturer.

1.4 SUBMITTALS

A. Requests for Substitutions: Submit 3 copies, fully described for product or method being replaced by substitution, including related specification section and drawings number(s), and fully documented to show compliance with requirements for substitutions. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect of construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitution will result in overall work equal-to-or-better-than work originally indicated.

1.5 PRODUCT DELIVERY-STORAGE-HANDLING

A. General: Deliver, handle and store products in accordance with manufacturer's recommendations and by methods and means which will prevent damage, deterioration, and loss including theft. Control delivery schedules to minimize long term storage of products at site and overcrowding of construction spaces. In particular, provide deliver/installation coordination to ensure minimum holding or storage times for products recognized to be flammable, hazardous, easily damage, or sensitive to deterioration, theft and other sources of loss.

1.6 WARRANTIES (GUARANTEES)

A. Categories of Specific Warranties: Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in sections of Divisions 2 through 16 of these specifications:

1 . Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by Contractor.

2. Specified Product Warranty: A warranty which is required by contract documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published a similar warranty without regard for specific incorporation of product into the work, or has written and executed a special project warranty as a direct result of contract documents requirements.

3. Coincidental Product Warranty: A warranty which is not specifically required by contract documents (other than as specified in this Section); but which is available on a product incorporated into the work, by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications except as otherwise limited by terms of warranty.

B. Refer to individual sections of Divisions 2 through 16 for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).

C. General Limitations: It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of sources. Except as otherwise indicated, specific warranties do not cover failures in the work which result from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, or 4) Insurrection or acts of aggression including war.

D. Related Damages and Losses: In connection with Contractor's correction of warranted work which has failed, remove and replace other work on project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of wan-anted work.

1 . Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.

E. Reinstatement of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the following time period, stating on date of acceptance of replaced or restored work.

1 . A period of time equal to original warranty period of time.

F. Replacement Cost, Obligations: Except as otherwise indicated, costs of replacing or restoring failing warranted units or products is Contractor's obligation, without regard for whether Owner has already benefited from use through a portion of anticipated useful services lives.

G. Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or subcontract for material or units of work for project where a special project warranty, specified product warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

H. Specific Warranty Forms: Where a special project warranty (guarantee) or specified product warranty is required, prepare a written document to contain terms and appropriate identification, ready for execution (through Architect/Engineer) for approval prior to final executions.

PART 2: PRODUCTS

2.1 GENERAL PRODUCT COMPLIANCES

A. General: The compliance requirements, for individual products as indicated in contract documents, are multiple in nature and may include generic, descriptive, proprietary, performance, prescriptive, compliance with standards, compliance with codes, conformance with graphic details and other similar forms and methods of indicating requirements, all of which must be complied with. Also "allowances" and similar provisions of contract documents will have a bearing on selection process.

B. Procedures for Selecting Products: Contractor's options for selecting products are limited by contract document requirements, and governing regulations, and are not controlled by industry traditions or procedures experienced by Contractor on previous construction projects. Required procedures include, but are not necessarily limited to, the following for various indicated methods of specifying:

1. Single Product/Manufacturer Name: Provide product indicated, except advise Architect/Engineer before proceeding, where known that named product is not a feasible or acceptable selection.

2. Two or More Product/Manufacturer Names: Provide one of the named products, at Contractor's option; but excluding products which do not comply with requirements. Do not provide or offer to provide an unnamed product, except where none of named products comply with requirements or are a feasible selection; advise Architect/Engineer before proceeding.

3. "Or Equal": Where named products in specifications text are accompanied by the term "or equal", or other language of similar effect, comply with those contract document provisions concerning "substitutions" for obtaining Architect's/Engineer's approval (by change order) to provide an unnamed product.

4. Standards, Codes and Regulations: Where only compliance with an imposed standard, Code or regulation is required, selection from among products which comply with requirements including those standards, codes and regulations, is Contractor's option.

5. Performance Requirements: Provide products which comply with specific performances indicated, and which are recommended by manufacturer (in published product literature or by individual certification) for application indicated. Overall performance of a product is implied where product is specified with only certain specific performance requirements.

6. Prescriptive Requirements: Provide products which have been produced in accordance with prescriptive requirements, using specified ingredients and components, and complying with specified requirements for mixing, fabricating, curing, finishing, testing, and similar operations in manufacturing process.

7. Visual Matching: Where matching with an established sample is required, final judgment of whether a product proposed by Contractor matches sample satisfactorily is Architects/Engineers judgment. Where no product within specified cost category is available, which matches sample satisfactorily and complies with requirements, comply with contract documents provisions concerning, "substitutions" and "change orders" for selection of a matching product outside established cost category or, of a product not complying with requirements.

8. Visual Selection: Except as otherwise indicated, where specified product requirements include "...as selected from manufacturer's standard colors, patterns, textures..." or words of similar effect, the selection of manufacturer and basic product (complying with requirements) is Contractor's option, and subsequent selection of color, pattern and texture is Architects/Engineers selection.

2.2 SUBSTITUTIONS

A. Conditions: Contractor's request for substitution will be received and considered when extensive revisions to contract documents are not required and changes are in keeping with general intent of contract documents; when timely, fully documented and properly submitted; and when one or more of the following conditions is satisfied, all as judged by Architect/Engineer. Otherwise, requests will be returned without action except to record non-compliance with these requirements.

1 . Where required product, material or method cannot be provided within Contract Time, but not as a result of Contractor's failure to pursue the work promptly or to coordinate various activities properly.

2. Where required product, material or method cannot be provided in a manner which is compatible with other materials of the work, or cannot be properly coordinated therewith, or cannot be warranted as required, or cannot be used without adversely affecting Owner's insurance coverage on completed work, or will encounter other substantial non-compliances which are not possible to otherwise overcome except by making requested substitution, which

Contractor thereby certifies to overcome such non-compatibility, non coordination, non-warranty, non-insurability or other non-compliance as claimed.

3. Where required product, material or method cannot receive required approval by a governing authority, and requested substitution can be so approved.

a. Submit within 10 days of Notice To Proceed, any proposed substitutions with reason for the substitution as outlined above.

B. Work-Related Submittals: Contractor's submittal of, and Architect's/Engineer's approval of, shop drawings, product data or samples which relate to work not complying with requirements of contract documents, does not constitute an acceptable or valid request for a substitution, nor approval thereof.

2.3 GENERAL PRODUCT REQUIREMENTS

A. General: Provide products which comply with requirements, and which are undamaged and unused at time of installation, and which are complete with accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.

B. Nameplates: Except as otherwise indicated for required approval labels, and operating data, do not permanently attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products which will be exposed to view either in occupied spaces or on exterior of the work.

1. Labels: Locate required labels and stamps on a concealed surface or, where required for observation after installation, on an accessible surface which, in occupied spaces, is not conspicuous.

2. Equipment Nameplates: Provide permanent nameplate on each item of service-connected or power operated equipment. Indicate manufacturer, product name, model number, serial number, capacity, speed, ratings and similar essential number, capacity, speed, ratings and similar essential operating data. Locate nameplates on an easily accessed surface which, in occupied spaces, is not conspicuous.

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 01700 - PROJECT CLOSEOUT

PART 1-GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division I Specification sections, apply to work of this section.

1.2 DESCRIPTION OF REQUIREMENTS

A. Definitions: Closeout is hereby defined to include general requirements near end of Contract Time, in preparation for final acceptance, final payment, normal termination of contract, occupancy by Owner and similar actions evidencing completion of the work. Specific requirements for individual units of work are specified in sections of Division 2 through 16. Time of closeout is directly related to "Substantial Completion", and therefore may be either a single time period for entire work or a series of time periods for individual parts of the work which have been certified as substantially complete at different dates. That time variation (if any) shall be applicable to other provisions of this section.

1.3 PREREQUISITES TO SUBSTANTIAL COMPLETION

A. General: Prior to requesting Architect' s/Engineer's inspection for certification of substantial completion (for either entire work or portions thereof), complete the following and list known exceptions in request:

1 . In progress payment request, coincident with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete", or list incomplete items, value of incompletion, and reasons for being incomplete.

2. Include supporting documentation for completion as indicated in these contract documents.

3. Submit statement showing accounting of changes to Contract Sum.

4. Advise Owner of pending insurance change-over requirements.

5. Submit specific warranties, workmanship/maintenance bonds, maintenance agreements, final certifications and similar documents.

6. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) occupancy permits, operating certificates, and similar releases.

7. Deliver tools, spare parts, extra stocks of materials, and similar physical items to Owner.

8. Complete start-up testing of systems, and instructions of Owner's operating/maintenance personnel. Discontinue (or change over) and remove from project site temporary facilities and services, along with construction tools and facilities, mock-ups, and similar elements.

9. Complete final cleaning up requirements, including touch-up painting of marred surfaces.

B. Inspection Procedures: Upon receipt of Contractor's request, Architect/Engineer will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Architect/Engineer will either prepare certificate of substantial completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form initial "punchlist" for final acceptance.

1.4 PREREQUISITES TO FINAL ACCEPTANCE

A. General: Prior to requesting Architect's/Engineer's final inspection for certification of final acceptance and final. payment, as required by General Conditions, complete the following and list known exceptions (if any) in request:

1. Submit final payment request with final releases and supporting documentation not previously submitted and accepted. Include certificates of insurance for products and completed operations where required.

2. Submit updated final statement, accounting for additional (final) changes to Contract Sum.

3. Submit certified copy of Architect's/Engineer's final punch-list of itemized work to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, endorsed and dated by Architect/Engineer.

4. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of time of substantial completion or when Owner took possession of and responsibility for corresponding elements of the work.

5. Submit consent of surety and waiver of liens.

6. Submit final liquidated damages settlement statement, acceptable to Owner.

7. Revise and submit evidence of final, continuing insurance coverage complying with requirements.

B. Re-inspection Procedure: Upon receipt of Contractor's notice that the work has been completed, including punch list items resulting from earlier inspections, and excepting incomplete items delayed because of acceptable circumstances, Architect/Engineer will re-inspect the work. Upon completion of re-inspection, Architect/Engineer will either prepare certificate of final acceptance or advise Contractor of work not completed or obligations not fulfilled as required for final acceptance. If necessary, procedure will be repeated.

1.5 RECORD DOCUMENT SUBMITTALS

A. General: Specific requirements for record documents are indicated in individual sections of these specifications. Other requirements are indicated in General Conditions. General submittal requirements are indicated in "submittals" section. Do not use record documents for construction purposes; protect from deterioration and loss in a secure, fire-resistive location; provide access to record documents for Architect's/Engineer's reference during normal working hours.

B. Record Drawings: Maintain a white-print set (blue-line or black-line) of contract drawings and shop drawings in clean, undamaged condition, with mark-up of actual installations which vary substantially from the work as originally shown. Mark whichever drawing is most capable of showing "field" condition fully and accurately; however, where shop drawings are used for mark-up, record a cross reference at corresponding location on working drawings. Mark with red erasable pencil and, where feasible, use other colors to distinguish between variations in separate categories of work. Mark-up new information which is recognized to be of importance to Owner, but was for some reason not shown on either contract drawings or shop drawings. Give particular attention to concealed work, which would be difficult to measure and record at later date. Note: relate change order numbers where applicable. Organize record drawing sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on cover of each set.

C. Record Specifications: Maintain one copy of specifications, including addenda, change orders and similar modifications issued in printed form during construction, and mark-up variations (of substance) in actual work in comparison with text of specifications and modifications as issued. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Note related record drawing information and product data, where applicable. Upon completion of mark-up, submit to Architect/Engineer for Owner's records.

D. Maintenance Manual: Organize maintenance-and-operating manual information into suitable sets of manageable size, and bind into individual binders properly identified and indexed (thumb-tabbed). Include emergency instructions, spare parts listing, copies of warranties, wiring diagrams, recommended "turn-around" cycles, inspection procedures, shop drawing, product data, and similar applicable information. Bind each manual of each set in a heavy-duty 2", 3-ring vinyl covered binder, and include pocket folders for folded sheet information. Mark identification on both front and spine of each binder.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 CLOSEOUT PROCEDURES

A. General Operating/Maintenance Instructions: Arrange for each installer of work requiring continuing maintenance or operation, to meet with Owner's personnel, at project site, to provide basic instructions needed for proper operation and maintenance of entire work. Include instructions by manufacturer's

representatives where installers are not expert in the required procedures. Review maintenance manuals, record documentation, tools, spare parts and materials, lubricants, fuels, identification system, control sequences, hazards, cleaning and similar procedures and facilities. For operational equipment, demonstrate startup, shutdown, emergency operations, noise and vibration adjustments, safety, economy/efficiency adjustments, energy effectiveness, and similar operations. Review maintenance and operations in relation with applicable warranties, agreements to maintain, bonds, and similar continuing commitments.

3.2 FINAL CLEANING

A. General: Special cleaning for specific units of work is specified in sections of Divisions 2 through 16. General cleaning during progress of work is specified in General Conditions and as temporary services in "Temporary Facilities" section of this Division. Provide final cleaning of the work, at time indicated, consisting of cleaning each surface or unit of work to normal "clean" condition expected for a first-class building cleaning and maintenance program. Comply with manufacturer's instructions for cleaning operations. The following are examples, but not by way of limitation, of cleaning levels required:

1 . Remove labels which are not required as permanent labels.

2. Clean transparent materials, including mirrors and window/door glass, to a polished condition, removing substrates which are noticeable as vision obscuring materials. Replace broken glass and damaged transparent materials.

3. Clean exposed exterior and interior hard-surfaced finishes, to a dirt-free condition, free of dust, stains, films and similar noticeable distracting substrate. Except as otherwise indicated, avoid disturbance of natural weathering of exterior surfaces. Restore reflective surfaces to original reflective condition.

4. Remove debris and surface dust from limited access spaces including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics and similar spaces.

5. Vacuum clean carpeted surfaces and similar soft surfaces.

6. Clean project site (yard and grounds), including landscape development areas, of litter and foreign substances. Sweep paved areas to a broom clean condition; remove stains, petro-chemical spills and other foreign deposits. Rake grounds which are neither planted nor paved, to a smooth, even-textured surface.

7. Lubricant properly and completely all machinery in this contract.

8. The windows furnished for this project are a finished product and shall be treated as such by all trades. The General Contractor shall see that these windows are not mistreated or abused. The masonry and plaster Contractor shall be sure that mortar or plaster spots are not allowed to stay on aluminum surfaces for more than 12 hours. Windows shall not be used as supports for scaffolding or any other purpose that will damage them. The General Contractor shall provide the

necessary protection of all windows from misuse or damage during the course of erection and shall clean all plaster, mortar or other foreign materials from the windows after installation and glazing. All glass in windows, exterior and interior, shall be cleaned with glass cleaner.

B. Restoration of Site: At completion of Project and before leaving job site, Contractor shall be responsible for restoring the site to the original state in which he found it at the start of the Project. This will include repair of grass areas used for storage of materials or stockpiling of debris, and repair of any other areas on property which the Contractor has damaged in the course of his work.

C. Removal of Protection: Except as otherwise indicated or requested by Architect/Engineer, remove temporary protection devices and facilities which were installed during course of the work to protect previously completed work during remainder of construction period.

D. Compliances: Comply with safety standards and governing regulations for cleaning operations. Do not bum waste materials at site, or bury debris or excess materials on Owner's property, or discharge volatile or other harmful or dangerous materials into drainage systems; remove waste materials from site and dispose of in a lawful manner.

END OF SECTION

SECTION 01710 - CLEANING

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL WORK BY EACH CONTRACTOR

Remove from glass, all stains, labels, and paint and then wash. Do not remove labels until Engineer notifies Contractor that he has checked same for grading. Before final acceptance, General Contractor shall wash and clean all windows, interior and exterior.

Remove all marks, stains, fingerprints, and other soil and dirt from painted work.

Clean and polish, removing all stains, dust, dirt, paint, etc. from hardware.

Clean off all ink, stains dirt, dust, oil, paint, etc., from fixtures and equipment.

Clean and polish all floors. All carpeting shall be vacuumed clean.

Lubricant properly and completely all machinery in this contract.

Remove all foreign materials from roof.

Remove all foreign materials from lawn and site area.

All pavement and sidewalk areas shall be left broom clean.

The windows furnished for this project are a finished product and shall be treated as such by all trades. The General Contractor shall see that these windows are not mistreated or abused. The masonry and plaster Contractor shall be sure that mortar or plaster spots are not allowed to stay on aluminum surfaces for more than 12 hours. Windows shall not be used as supports for scaffolding or any other purpose that will damage them. The General Contractor shall provide the necessary protection of all windows from misuse or damage during the course of erection and shall clean all plaster, mortar or other foreign materials from the windows after installation and glazing.

1.2 MECHANICAL AND ELECTRICAL CONTRACTOR

The Mechanical Contractor and Electrical Contractor shall lubricate properly and completely, all machinery. (See Mechanical and Electrical Sections for required items of cleaning.)

1.3 ALL CONTRACTORS

During construction all contractors shall be responsible for removing debris left by his work at frequent intervals in order that no large accumulation of debris be left for any length of time. Each contractor shall remove all tools, scaffolding, waste materials caused by operations under his charge and at completion of job leave his work in cleaned condition satisfactory to the Owner and Engineer.

SECTION 01740 - WARRANTIES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. This Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers standard warranties on products and special warranties.

1 . Refer to the General Conditions for terms of the Contractor's period for correction of the Work.

B. Related Sections: The following Sections contain requirements that relate to this Section:

1 . Division I Section "Contract Closeout" specifies contract closeout procedures.

2. Divisions 2 through 16 Sections for specific requirements for warranties on products and' installations specified to be warranted.

3. Certifications and other commitments and agreements for continuing services to Owner are specified elsewhere in the Contract Documents.

C. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

1.3 DEFINITIONS

A. Standard product warranties are preprinted written warranties published by individual manufacturers for particular products and are specifically endorsed by the manufacturer to the Owner.

B. Special warranties are written warranties required by or incorporated in the Contract Documents, either to extend time limits provided by standard warranties or to provide greater rights for the Owner.

1.4 WARRANTY REQUIREMENTS

A. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.

B. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.

C. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.

D. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1 . Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

E. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.5 SUBMITTALS

A. Submit written warranties to the Architect/Engineer prior to the date certified for Substantial Completion. If the Architect's/Engineer’s Certificate of Substantial Completion designates a commencement date for warranties other than the date of Substantial Completion for the Work, or a designated portion of the Work, submit written warranties upon request of the Architect/Engineer.

1. When a designated portion of the Work is completed and occupied or used by the Owner, by separate agreement with the Contractor during the construction period, submit properly executed warranties to the Architect/Engineer within 15 days of completion of that designated portion of the Work.

B. When the Contract Documents require the Contractor, or the Contractor and a subcontractor, supplier or manufacturer to execute a special warranty, prepare a written document that contains appropriate terms and identification, ready for execution by the required parties. Submit a draft to the Owner, through the Architect/Engineer, for approval prior to final execution.

C. Form of Submittal: At Final Completion compile 2 copies of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer. Organize the warranty documents into an orderly sequence based on the table of contents of the Project Manual.

D. Bind warranties and bonds in heavy-duty, commercial quality, durable 3-ring, vinyl-covered loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8 ½" X 11"paper.

1 . Provide tabbed divider for each separate warranty. Mark the tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product, and the name, address, and telephone number of the Installer.

2. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", Project title or name, and name of the Contractor.

3. When warranted construction requires operation and maintenance manuals, provide additional copies of each required warranty, as necessary, for inclusion in each required manual.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION

3.1 LIST OF WARRANTIES

A. Provide warranties on products and installations as specified in Division 2 through 16 Sections. See list below. General Contractor to provide the list of the warranties below with warranty period for each piece for equipment and labor.

1. Chain Link Fencing and Vinyl Slats
2. Pre-Finished Canopies
3. Window Units – Aluminum Framed
4. Glazing in Window Units
5. Sliding Automatic Entry Doors by Stanley
6. Solid Surface Counter Tops
7. Roofing
8. Vinyl Composition Tile
9. Carpet
10. Luxury Vinyl Tile
11. Hollow Metal Steel Doors and Frames
12. Pre-Finished Solid Wood Doors
13. Door Hardware
14. Gas Furnaces
15. Air Conditioning Units – Split Systems
16. Roof Top HVAC Units
17. Generator and ATS
18. Light Poles
19. Light Fixtures
20. Plumbing Fixtures

END OF SECTION

SHORT TERM RADON STUDY

WABASH VALLEY HEALTH CENTER
1436 LOCUST STREET
TERRE HAUTE, INDIANA 47807

ALLIANCE PROJECT NUMBER 19-0012-R

ALLIANCE
Environmental Group, Inc.

February 12, 2019

Mr. Charles Welker
Wabash Valley Health Center
1436 Locust Street
Terre Haute, Indiana 47807

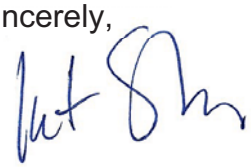
RE: SHORT-TERM RADON TESTING
WABASH VALLEY HEALTH CENTER
1436 LOCUST STREET, TERRE HAUTE, INDIANA
ALLIANCE ENVIRONMENTAL GROUP PROJECT NUMBER 19-0012-R

Dear Mr. Welker:

Thank you for choosing Alliance Environmental Group, Inc. (Alliance) for your professional radon testing services. We appreciate serving the Wabash Valley Health Center.

Alliance has performed a short-term radon study at the Wabash Valley Health Center. This report has been prepared for the exclusive use of the Wabash Valley Health Center.

Sincerely,



Kent Shadley, CHMM
Vice President, Field Operations

SHORT-TERM RADON STUDY

Conducted on the facilities of:

WABASH VALLEY HEALTH CENTER
1436 Locust Street
Terre Haute, Indiana 47807

Project Number 19-0012-R

Prepared for:

WABASH VALLEY HEALTH CENTER
1436 Locust Street
Terre Haute, Indiana 47807
Attn: Mr. Charles Welker

Prepared by:

Alliance Environmental Group, Inc.
5153 Commerce Square Drive, Suite E
Indianapolis, Indiana 46237
(317) 865-3400

Executive Summary

Alliance Environmental Group, Inc. (Alliance) conducted short term radon measurements at selected locations in within the Wabash Valley Health Center.

Vigo County, Indiana lies within Radon Zone 2, where the predicted average indoor radon screening level ranges from 2.0 to 4.0 picocuries per liter (pCi/L) of air. The Environmental Protection Agency (EPA) recommends mitigation if radon levels exceed 4.0 pCi/L.

Radon results ranged from 4.3 pCi/L to 7.7 pCi/L in the basement of the Wabash Valley Health Center.

The results of this short-term radon study indicate all offices/areas sampled have results greater than the EPA recommended level of 4.0 pCi/L.

Based on laboratory results, additional evaluation is recommended for the Wabash Valley Health Center.

Table of Contents

Appendices

Introduction

Alliance Environmental Group, Inc. (Alliance) conducted a short-term radon measurement at selected areas and/or offices within the Wabash Valley Health Center.

The survey was conducted January 28, 2019 to January 30, 2019.

Methodology

Radon measurement devices were deployed in individual spaces in the basement. Radon measurement devices consisted of charcoal canisters distributed and analyzed by EMSL Analytical. Radon measurement devices were deployed January 28, 2019 and retrieved on January 30, 2019. Radon devices were placed at least three feet from exterior openings (windows or doors), at a minimum height of two feet above the floor, at least 12 inches from interior walls, and at least four inches from other objects to allow for proper air circulation.

Radon measurement devices were deployed and retrieved by Kent Shadley, NRPP number 106510RT, expiration August 31, 2020, Indiana Secondary Radon Tester number RTS00601, expiration December 31, 2020.

Radon measurement devices were delivered to EMSL Analytical in Cinnaminson, New Jersey for analysis.

Quality Control

Duplicate charcoal canisters were deployed side-by-side with measurement canisters at a rate of 10 percent of the total measurement devices deployed. Blanks (unopened devices) were deployed side-by-side with measurement canisters at a rage of five percent of the total measurement devices deployed. Two devices, totaling 15 percent of the measurement devices deployed, were sent to an independent radon chamber for exposure to a known radon concentration, then sent to EMSL for analysis.

Blanks were utilized at a rate of 10 percent of all devices deployed. Blanks were deployed side-by-side with another measurement device; however, the blanks remained closed during the testing period. All blanks were reported to have radon concentrations between 0.05 pCi/L and 0.1 pCi/L. The laboratory performs a daily radon sample analysis. The results of the analysis are then subtracted from any client-submitted blank samples. The laboratory's established lower limit of detection for these devices is 0.3 pCi/L. All blanks were at or below the lower limit of detection; therefore, no bias in reportable results is indicated.

Analytical Results

Analytical results for each area and/or office are provided in the following table:

Room	Device	Start		End		Result (pCi/L)
		Date	Time	Date	Time	
Kitchen	362063	1-28-2019	09:11	1-30-2019	09:27	6.3
AED Cabinet	362075	1-28-2019	09:13	1-30-2019	09:28	5.1
Athletic Training	362042	1-28-2019	09:15	1-30-2019	09:30	4.8
Behavioral Care	362077	1-28-2019	09:17	1-30-2019	09:30	5.4
Behavioral Care – Duplicate	362066	1-28-2019	09:17	1-30-2019	09:30	5.4
Office 1	362056	1-28-2019	09:19	1-30-2019	09:31	7.7
Office 2	362826	1-28-2019	09:20	1-30-2019	09:32	6
Office 3	360064	1-28-2019	09:21	1-30-2019	09:33	5.5
Office 3 – Blank	362073	1-28-2019	09:21	1-30-2019	09:33	0.05
Office 4	362098	1-28-2019	09:23	1-30-2019	09:33	6
Storage 1	362079	1-28-2019	09:24	1-30-2019	09:34	5
Storage 2	362824	1-28-2019	09:26	1-30-2019	09:34	5.2
Storage 2 – Blank	362126	1-28-2019	09:26	1-30-2019	09:34	0.1
Hallway	362088	1-28-2019	09:28	1-30-2019	09:36	4.3
Storage 3	362839	1-28-2019	09:30	1-30-2019	09:36	7.1
Physical Therapy	362097	1-28-2019	09:36	1-30-2019	09:33	6
Physical Therapy – Duplicate	362809	1-28-2019	09:36	1-30-2019	09:33	5.7

Analysis of Data

The EPA and the Indiana State Department of Health recommend mitigation when radon levels exceed 4.0 pCi/L in indoor air. All areas in the basement evaluated in this short-term radon study had radon results above 4.0 pCi/L.

Testing was conducted using charcoal canisters analyzed by liquid scintillation, and the results indicate an average exposure during the testing period and do not discriminate between occupied and unoccupied periods.

Quality control data indicates that the data is acceptable for use.

Conclusions

The results of this short-term radon study indicate all offices/areas sampled have results greater than the EPA recommended level of 4.0 pCi/L.

Recommendations

Alliance Environmental Group recommends that follow-up measurements be conducted inside the Wabash Valley Health Center. Additional investigation should consist of an additional 48-hour short-term testing utilizing continuous radon monitors during the business week to determine if radon exposure can occur during occupied periods. Alternatively, a long-term radon test (>90 days) can be used to determine radon levels over time. A long-term radon test below 4.0 pCi/L would indicate mitigation is not necessary. As part of renovation activities, Alliance recommends the installation of a radon mitigation system. If a mitigation is installed and is operational, Alliance recommends follow-up short-term sampling utilizing the continuous radon monitors.

APPENDIX A

LABORATORY REPORTS AND CHAIN OF CUSTODY

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	381900986
CustomerID:	ALLI65
CustomerPO:	
ProjectID:	

Attn: **Kent Shadley**
Alliance Environmental Group, Inc.
5153 Commerce Square Drive
Suite E
Indianapolis, IN 46237

Phone:	(317) 865-3400
Fax:	(317) 865-3401
Received:	02/01/19 10:21 AM
Analysis Date:	2/3/2019
Collected:	1/28/2019

Project: **19-0012-12 / Wabash Valley Health Center**

Test Site: **Wabash Valley Health Center**
1436 Locust Street
Terre Haute, IN 47807

Test Report: Radon in Air Test Results

Samples for EMSL Kit 205519

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362063	Kitchen	6.3	1/28/2019	1/30/2019	64	30	Customer
381900986-0001			9:11:00 AM	9:27:00 AM			
Sample Notes:							

Samples for EMSL Kit 205520

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362075	AED Cabinet	5.1	1/28/2019	1/30/2019	70	20	Customer
381900986-0002			9:13:00 AM	9:28:00 AM			
Sample Notes:							

Samples for EMSL Kit 205521

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362042	Athletic Training	4.8	1/28/2019	1/30/2019	70	20	Customer
381900986-0003			9:15:00 AM	9:30:00 AM			
Sample Notes:							

Samples for EMSL Kit 205522

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362077	Behavorial Care	5.4	1/28/2019	1/30/2019	68	20	Customer
381900986-0004			9:17:00 AM	9:30:00 AM			
Sample Notes:							
362066	Behavorial Care	5.4	1/28/2019	1/30/2019	68	20	Duplicate
381900986-0005			9:17:00 AM	9:30:00 AM			
Sample Notes:							
						Duplicate RPD = 0%	

Samples for EMSL Kit 205523

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362056	Office 1	7.7	1/28/2019	1/30/2019	66	20	Customer
381900986-0006			9:19:00 AM	9:31:00 AM			
Sample Notes:							

SECTION 01800-10

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	381900986
CustomerID:	ALLI65
CustomerPO:	
ProjectID:	

Attn: **Kent Shadley**
Alliance Environmental Group, Inc.
5153 Commerce Square Drive
Suite E
Indianapolis, IN 46237

Phone:	(317) 865-3400
Fax:	(317) 865-3401
Received:	02/01/19 10:21 AM
Analysis Date:	2/3/2019
Collected:	1/28/2019

Project: **19-0012-12 / Wabash Valley Health Center**

Test Site: **Wabash Valley Health Center**
1436 Locust Street
Terre Haute, IN 47807

Test Report: Radon in Air Test Results

Samples for EMSL Kit 205524

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362826	Office 2	6	1/28/2019	1/30/2019	66	20	Customer
381900986-0007			9:20:00 AM	9:32:00 AM			
Sample Notes:							

Samples for EMSL Kit 205525

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
360065	Office 3	5.5	1/28/2019	1/30/2019	68	20	Customer
381900986-0008			9:21:00 AM	9:33:00 AM			
Sample Notes:							
362073	Office 3	0.05	1/28/2019	1/30/2019	68	20	Blank
381900986-0009			9:21:00 AM	9:33:00 AM			
Sample Notes:							

Samples for EMSL Kit 205513

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362098	Office 4	6	1/28/2019	1/30/2019	68	10	Customer
381900986-0010			9:23:00 AM	9:33:00 AM			
Sample Notes:							

Samples for EMSL Kit 205514

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362079	Storage 1	5	1/28/2019	1/30/2019	68	20	Customer
381900986-0011			9:24:00 AM	9:34:00 AM			
Sample Notes:							

SECTION 01800-11

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	381900986
CustomerID:	ALLI65
CustomerPO:	
ProjectID:	

Attn: **Kent Shadley**
Alliance Environmental Group, Inc.
5153 Commerce Square Drive
Suite E
Indianapolis, IN 46237

Phone:	(317) 865-3400
Fax:	(317) 865-3401
Received:	02/01/19 10:21 AM
Analysis Date:	2/3/2019
Collected:	1/28/2019

Project: **19-0012-12 / Wabash Valley Health Center**

Test Site: **Wabash Valley Health Center**
1436 Locust Street
Terre Haute, IN 47807

Test Report: Radon in Air Test Results

Samples for EMSL Kit 205515

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362824	Storage 2	5.2	1/28/2019	1/30/2019	68	10	Customer
381900986-0012			9:26:00 AM	9:34:00 AM			
Sample Notes:							
362126	Storage 2	0.1	1/28/2019	1/30/2019	68	10	Blank
381900986-0013			9:26:00 AM	9:34:00 AM			
Sample Notes:							

Samples for EMSL Kit 205516

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362088	Hallway	4.3	1/28/2019	1/30/2019	66	10	Customer
381900986-0014			9:28:00 AM	9:36:00 AM			
Sample Notes:							

Samples for EMSL Kit 205517

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362839	Storage 3	7.1	1/28/2019	1/30/2019	64	10	Customer
381900986-0015			9:30:00 AM	9:36:00 AM			
Sample Notes:							

Samples for EMSL Kit 205518

Liquid Scintillation ID	Location	Radon Activity pCi/L	Start	Stop	Temperature F	Humidity %	Sample Type
362097	Physical Therapy	6	1/28/2019	1/30/2019	68	30	Customer
381900986-0016			9:36:00 AM	9:33:00 AM			
Sample Notes:	Radon device exposed <48 hours						
362809	Physical Therapy	5.7	1/28/2019	1/30/2019	68	30	Duplicate
381900986-0017			9:36:00 AM	9:33:00 AM			
Sample Notes:	Radon device exposed <48 hours						

Duplicate RPD = 5.1%

SECTION 01800-12

EMSL Analytical, Inc.
200 Route 130 North, Cinnaminson, NJ 08077
Phone/Fax: (800) 220-3675 / (856) 786-0327
http://www.EMSL.com cinnaminsonradonlab@emsl.com

EMSL Order:	381900986
CustomerID:	ALLI65
CustomerPO:	
ProjectID:	

Attn: **Kent Shadley**
Alliance Environmental Group, Inc.
5153 Commerce Square Drive
Suite E
Indianapolis, IN 46237

Phone:	(317) 865-3400
Fax:	(317) 865-3401
Received:	02/01/19 10:21 AM
Analysis Date:	2/3/2019
Collected:	1/28/2019

Project: **19-0012-12 / Wabash Valley Health Center**

Test Site: **Wabash Valley Health Center**
1436 Locust Street
Terre Haute, IN 47807

Test Report: Radon in Air Test Results

The radon test was performed using a liquid scintillation radon detector/s and counted on a liquid scintillation counter using approved EPA testing protocols for Radon in Air testing. The EPA recommends fixing your home if the average of two short-term tests taken in the lowest lived-in level of the home show radon levels that are equal to or greater than 4.0pCi/L.
The EPA recommends retesting your home every two years.

Please contact EMSL Analytical, Inc. or your State Health Department for further information.
All procedures used for generating this report are in complete accordance with the current EPA protocols for the analysis of Radon in Air.

Report Note

Analyst(s)

Drew Bush (17)

Laura Freeman, Laboratory Tester License, RTL00760 &
Michael Menz, CIH

Initial report from 02/05/2019 14:52:45

Please visit www.radontestinglab.com

SECTION 01800-13

OrderID: 381900986

UPS 1Z E45A1503148598533 WH 1 ALL165 3day

EMSL ANALYTICAL, INC.

CHAIN OF CUSTODY
RADON LABORATORY SERVICES
(COMMERCIAL USE)

EMSL Job #: 381900986.

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: 800-220-3675
FAX: 856-786-0327

Company Information

Company Name: ALLIANCE ENVIRONMENTAL GROUP, INC
EMSL Account #: ALL165
Contact: KENT SHADLEY, CHMM
Address: 5153 COMMERCE SQUARE DRIVE, SUITE E
City: INDIANAPOLIS
State: INDIANA Zip Code: 46237
Phone: (317) 865-3400
Fax: (317) 865-3401
Email: data@aegindy.com

Project / Property Information:

Name: WABASH VALLEY HEALTH CENTER
Address: 1436 LOCUST STREET
City: TERRE HAUTE
Municipality: County: VIGO
State: INDIANA Zip Code: 47807
PO#/Project#: 19-0012-R
☐ Please check box if this is a Post Mitigation Test
Technician Name: KENT SHADLEY
Technician Certification #: RTSP0641
Technician Signature:

RECEIVED FEB 21 2019 EMSL CINNAMINSON, NJ

Disclaimer

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages arising out of or in connection with EMSL's services there under or the delivery, use, reliance upon or interpretation of test results by client or third party. We accept no legal responsibility for the purposes for which the client uses the test results. In no event shall EMSL be liable to a client or any third party, whether based upon theories of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereafter.

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
205519	362063	KITCHEN	1/28/19 9:11	1/30/19 9:27	64	30
205520	362075	AED CABINET	1/28/19 9:13	1/30/19 9:28	70	20
205521	362042	ATHLETIC TRAINING	1/28/19 9:15	1/30/19 9:30	70	20
205522	362077	BEHAVIORAL CARE	1/28/19 9:17	1/30/19 9:30	68	20
205522	362066	DUP	1/28/19 9:17	1/30/19 9:30	68	20
205523	362056	OFFICE 1	1/28/19 9:19	1/30/19 9:31	66	20
205524	~~362826~~ 362826 pg 2/11/19	OFFICE 2	1/28/19 9:20	1/30/19 9:32	66	20
205525	360065	OFFICE 3	1/28/19 9:21	1/30/19 9:33	68	20
205525	362073	BLANK	1/28/19 9:21	1/30/19 9:33	68	20
205513	362098	OFFICE 4	1/28/19 9:23	1/30/19 9:33	68	10
205514	362079	STORAGE 1	1/28/19 9:24	1/30/19 9:34	68	20
205515	362024	STORAGE 2	1/28/19 9:26	1/30/19 9:34	68	10

Relinquished By:
Received By: 2/1/19

SECTION 01800-14

OrderID: 381900986

EMSL ANALYTICAL, INC.

CHAIN OF CUSTODY
RADON LABORATORY SERVICES
(COMMERCIAL USE)

EMSL Job #: 381900986

MH/ ALL 65 3 day

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: 800-220-3675
FAX: 856-786-0327

Box Number	Device Number	Location	Exposure Period Beginning Date and Time	Exposure Period Ending Date and Time	Temperature, °F	Humidity, %
205515	362126	BLANK	1/28/19 9:24	1/30/19 9:34	68	10
205516	362088	HALLWAY	1/28/19 9:28	1/30/19 9:36	66	10
205517	362839	SCHOOL 3	1/28/19 9:30	1/30/19 9:36	~~68~~ 64 MAS	10
205518	362097	PHYSICAL THERAPY	1/28/19 9:36	1/30/19 9:33	68	30
205519	362809	DUP	1/28/19 9:36	1/30/19 9:33	68	30

RECEIVED EMSL CINNAMINSON, N.J. 2019 FEB -1 A 10: 21

Relinquished By: [signature] 1/30/2019 14:30

Received By: [signature] 2/1/19

SECTION 01800-15

RSSI

6312 West Oakton Street
Morton Grove, IL 60053-2723
847-965-1999
Fax 847-965-1991

June 07, 2019

Alliance Environmental Group Inc
Kent Shadley
5153 Commerce Square Drive
Suite E
Indianapolis, IN 46237
USA

Alpha Track Radon Test Results

Detector Number	pCi/L	Test Location	Test Address	Start Date	End Date	Note*
360892	5.8 ± 3%	Basement or Below Grade	1436 LOCUST STREET TERRE HAUTE, IN 47807	3/1/2019	6/3/2019	
360893	7.9 ± 3%	Basement or Below Grade	1436 LOCUST STREET TERRE HAUTE, IN 47807	3/1/2019	6/3/2019	1,

Analyzed By: Aaron D. Morris — 06/07/ 2019

Aaron Morris — Analysis Date

Radon Analyst

END REPORT

* 1-Broken Seal, 2-Damaged Filter, 3-Loose Test Material, 4-Missing Test Material, 5-Missing End Date, 6-Missing Start Date, 7-Less Than 8 Days, 8-Past Expiration Date, 9-Missing Both Dates, NA-No applicable notes

Analytical results showing the radon concentration relate only to the device(s) tested in the condition as received by RSSI. Results were calculated based on information provided by the client.

Customer Number: 4276

SECTION 01810-1

Michael R. Waldbieser

From: Charles Welker <cwelker@wvhc.org>
Sent: Tuesday, June 11, 2019 3:36 PM
To: 'Troy Biddle'; Michael R. Waldbieser
Cc: 'Chris Fields'; Brooke Lockhart
Subject: FW: radon results
Attachments: WVHC alpha track test report.pdf

Troy and Mike –

Per the below message and attached results, please plan to install a radon mitigation system as part of our project.

Thank you!

Charlie

From: Kent Shadley <kshadley@aegindy.com>
Sent: Tuesday, June 11, 2019 3:05 PM
To: Charles Welker <cwelker@wvhc.org>
Subject: radon results

Mr. Welker:

Attached is the lab report for the long term radon tests conducted at WVHC. Both test results exceeded the EPA recommended level of 4.0 pCi/L. The EPA recommended level is a residential standard, based on 16 hours per day of exposure for 7 days per week. There is no standard for commercial or public buildings.

The results were 5.8 pCi/L and 7.9 pCi/L. We recommend you consider installing a radon mitigation system during renovation.

A formal report will follow.

KENT SHADLEY, CHMM | VICE PRESIDENT, FIELD SERVICES

ALLIANCE ENVIRONMENTAL GROUP, INC.
5153 COMMERCE SQUARE DRIVE, SUITE E
INDIANAPOLIS, INDIANA 46237

(317) 865-3400 OFFICE | (317) 865-3401 FAX | (317) 507-7806 CELL

(800) 783-7523 | www.aegindy.com

PATRIOT ENGINEERING and ENVIRONMENTAL, Inc.

Engineering Value for Project Success

January 17, 2019

Mr. Charles Welker
Wabash Valley Health Center
1436 Locust Street
Terre Haute, IN 47807

RE: Asbestos Containing Material and Lead Based Paint Survey
Wabash Valley Health Center
1436 Locust Street
Terre Haute, Indiana 47807
Patriot Project No. 18-1869-02E

Dear Mr. Welker:

Patriot Engineering and Environmental Inc. (*Patriot*) is pleased to provide you with the results of the Asbestos Containing Material (ACM) and Lead Based Paint (LBP) survey conducted at the Wabash Valley Health Center located at 1436 Locust Street in Terre Haute, Indiana (hereafter referred to as the Site).

The ACM survey was performed on January 7-8, 2019 by Mr. Scott L. Dombrowski (Indiana Asbestos Building Inspector License # 191325103 – expiration date of October 30, 2019) and the LBP survey was performed by Ms. Susan Blackmore, Senior Patriot Project Manager. This report details the scope of work performed and provides recommendations as warranted.

FIELD INVESTIGATION

Asbestos Inspection Protocol

The ACM inspection and sampling was performed in accordance with the following regulatory statutes and memorandums:

- *National Emission Standards for Hazardous Air Pollutants - Asbestos Demolition, Renovation and Waste Disposal; 40 CFR 61, Subpart M.*

- *The Occupational Safety and Health Administration (OSHA) - Safety and Health Standards for the Construction Industry 29 CFR part 1926.62, Subpart D*.
- *Indiana Department of Environmental Management (IDEM) Office of Solid and Hazardous Waste Management (OSHWM) Waste Rules - 329 IAC 2-9-2, Construction/Demolition Site Waste Criteria and 10-8 Asbestos Special Waste Rules.*
- *IDEM-Office of Air Management (OAM) Asbestos Air Rules – 326 IAC 14-2 and 14-10.*
- IDEM Memorandums "*Asbestos Handling and Disposal Requirements*" dated 2-94 and "*Disposal of Nonfriable Asbestos Roofing Materials and Nonfriable Floor Tiles*" dated 6-94.

The identification of ACM was accomplished through a visual evaluation of suspect building materials, bulk sampling, and laboratory analysis. Sampling and analysis was conducted in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAPS). The scope of work for the asbestos survey included the following activities:

- Conducting a visual Site survey to define building materials that commonly contain asbestos and to define homogenous areas of those materials,
- Determining an accurate number of bulk samples to be collected based on information obtained from the visual survey,
- Collecting bulk samples, and
- Laboratory Analysis.

Asbestos Sampling

A total of 92 samples were collected and submitted for laboratory analysis of 55 sample layers. The bulk samples were delivered to EMSL Analytical, Inc. (EMSL) in Indianapolis, Indiana and analyzed by Polarized Light Microscopy (PLM) in accordance with the United States Environmental Protection Agency (U.S. EPA) "Interim Method for the Determination of Asbestos in Bulk Insulation Samples" (U.S. EPA Method 600/R-93/116).

Suspect materials collected during the inspection included various flooring materials, wall and cove base materials, ceiling tiles, transite paneling located in

the basement storage room, window caulk and glazing, and other miscellaneous building materials. Roofing materials were not sampled in order to maintain the integrity of the roof system.

A sample data sheet containing sample locations, friability, types of material sampled, quantities, and asbestos percentages is provided as Table 1 in Attachment A. Asbestos laboratory analytical results and chain of custody documentation are included in Attachment B.

Lead-Based Paint Sampling

The LBP survey work was performed in accordance with guidelines established by the U.S. EPA and OSHA. The purpose of the LBP sampling was to determine if lead paint was present on interior and exterior painted surfaces that are likely to be disturbed during planned renovation at the Site.

During the limited LBP sampling, Patriot collected a total of 63 bulk samples of various colored paint throughout the building from the following substrates: drywall, brick, plaster, wood trim, wood window frames, metal posts, concrete floor, metal hand railings, metal doorframes, metal doors and wood doors.

The bulk paint samples were delivered to EMSL Analytical, Inc. in Indianapolis, Indiana and analyzed for lead utilizing Flame Atomic Absorption (AA) Spectroscopy via Method SW 846 3050B/7000B. The laboratory analytical report and chain-of-custody documentation is included in Attachment C.

FINDINGS AND RECOMMENDATIONS

Asbestos Sampling Results

According to the U.S. EPA and OSHA, “Any material or product containing greater than one percent asbestos (>1%) is designated as an asbestos containing material”.

The laboratory analyses of the samples revealed that the following materials contain asbestos at concentrations > 1%:

- Green 9”x9” floor tile located in the basement south office contained 4% chrysotile.

- Black 9”x9” floor tile located in the basement south office contained 3% chrysotile.
- Transite paneling located in the basement storage room contained 20% chrysotile. Approximately 2,000 square feet of the transite paneling was observed.
- Green 9”x9” floor tile located in the first floor east-central mechanical room contained 4% chrysotile. Approximately 25 square feet of the floor tile was observed.
- Black 9”x9” floor tile located in the first floor east-central mechanical room contained 3% chrysotile. Approximately 25 square feet of the floor tile was observed.
- Window Caulking located on the northwest corner of the building exterior contained 2% chrysotile.

It is possible that additional floor tiles are present elsewhere in the building beneath carpeting. If additional green and/or black 9”x9” floor tile is encountered, *Patriot* recommends assuming the green and black 9”x9” floor tile contains >1% asbestos, or alternatively having the material sampled. Any other types of floor tile should be sampled to determine the asbestos content.

The above materials, with the exception of the transite paneling, are Category I non-friable materials and must not be cut, sawed, abraded, sanded, or burned. If any of these activities need to occur on the green and black 9”x9” floor tile or the window caulking they must be performed by an Indiana licensed asbestos abatement firm.

The transite paneling is a Category II non-friable material and must not be cut, sawed, abraded, sanded or burned. If any of these activities or removal need to occur on the transite paneling they must be performed by an Indiana licensed asbestos abatement firm.

Lead-Based Paint Sampling Results

The OSHA does not define LBP by a percentage content of lead; rather, any detectable concentration of lead in paint is considered lead for purposes of complying with OSHA regulations to determine worker exposure. Lead was detected above the reported detection limit (RDL) of 0.01% lead by weight in the following 18 samples, which are therefore deemed lead-containing.

- Sample L-01: Yellow paint on drywall wall in breakroom - 0.062%
- Sample L-03: Pink paint on bricks in lower level women's restroom - 1.5%
- Sample L-04: Blue paint on bricks in lower level men's restroom - 0.23%
- Sample L-06: White paint on plaster wall on 1st floor corridor - 0.12%
- Sample L-12: White paint on wood trim on 1st floor exam room #4 - 0.67%
- Sample L-15: White paint on wood trim on 1st floor nursing station - 0.81%
- Sample L-31: White/Green paint on metal post in lower level exercise room - 0.39%
- Sample L-32: White paint on bricks in lower level mechanical room - 0.025%
- Sample L-39: White paint on wood trim on 1st floor vestibule - 0.73%
- Sample L-40: White paint on wood on the rear exterior window - 4.8%
- Sample L-42: Gray paint on metal railings on east exterior ramp - 0.011%
- Sample L-45: White paint on wood trim on 1st floor waiting- kids area - 0.049%
- Sample L-48: White paint on interior wood window on 1st floor front - 0.45%
- Sample L-49: White paint on drywall wall on 1st floor front - 0.047%
- Sample L-52: White paint on interior wood window on 1st floor storage - 0.024%
- Sample L-54: Light green paint on drywall on 1st floor biohazard storage - 0.62%
- Sample L-56: Blue paint on floor on lower level mechanical room - 0.62%
- Sample L-63: White/Green paint on drywall on 1st floor furnace room - 0.29%

The results of the sampling indicate that LBP is present on painted surfaces tested throughout the Site. Before surfaces with LBP are disturbed during renovation activities, Patriot recommends undertaking one of the following:

- Regulations specified within the OSHA Lead in Construction Standard (29 CFR 1926.62) must be followed, or

- Renovations activities must be performed by a certified lead abatement contractor, a firm certified by the U.S. EPA in conjunction with the Lead Renovation, Repair and Painting (RRP) Rule, or a contractor familiar with the OSHA Lead in Construction Standard.

QUALIFICATIONS OF ASSESSMENT

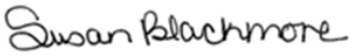
Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the fields of environmental science and engineering. This warranty is in lieu of all other warranties either express or implied. This company is not responsible for

the independent conclusions, opinions or recommendations made by others based on the field exploration and information research presented in this report. In addition, this report is intended for the sole use of the Wabash Valley Health Center and Hannig Construction. Any use or re-use of this document or the findings, conclusions, or recommendations presented herein are at the sole risk of said user.

We trust that this submittal is responsive to your needs. Please do not hesitate to contact us if you should have any questions or require additional information regarding the contents of this report.

Sincerely,

Patriot Engineering and Environmental, Inc.



Jared Epple
Project Manager
Environmental Division

Susan Blackmore, LPG
Senior Project Manager
Environmental Division

Attachment A: Tables
Attachment B: Asbestos Laboratory Results and Chains of Custody
Attachment C: Lead Based Paint Laboratory Results and Chains of Custody

ATTACHMENT A

TABLES

TABLE 1 – ACM SAMPLE DATA SHEETS

PATRIOT ENGINEERING and ENVIRONMENTAL, INC
6150 East 75th Street
Indianapolis, Indiana 46250
317-576-8058 - office
317-576-1965 - fax

PROJECT NAME: 1436 Locust Street ACM and LBP Survey
PROJECT NUMBER: 18-1869-02E
COLLECTED BY: Scott Dombrowski
DATE: 1/7/2019 & 1/8/2019
ANALYZED BY: EMSL

Table 1. Asbestos Homogeneous Area (HA) Bulk Sample Data Sheet

Sample No.	HA Description	Type of ACBM (1)	Friable upon Demolition? (Y/N)	Damage (N,L,M,H) (3)	Quantity	HA No.	Sampling Location	Asbestos Content
1	4" Brown Cove Base & Mastic	Misc.	N	L	NA	1	Basement, Athletic Training Office	None Detected
2	4" Brown Cove Base & Mastic	Misc.	N	L	NA	1	Basement, Near Emergency Exit	None Detected
3	4" Brown Cove Base & Mastic	Misc.	N	L	NA	1	2nd floor Conference Room Storage Room	None Detected
4	4" Light Grey Cove Base & Mastic	Misc.	N	L	NA	2	Basement, Men's Restroom	None Detected
5	4" Light Grey Cove Base & Mastic	Misc.	N	L	NA	2	Basement	None Detected
6	4" Light Grey Cove Base & Mastic	Misc.	N	L	NA	2	2nd floor Conference Room	None Detected
7	9"x9" Green Floor Tile over Black Floor Tile & Mastic	Misc.	N	L	Unk	3	Basement, South Office	4% Chrysotile
8	2'x4' Ceiling Tile Heavy Recessed Worm & Pinhole	Misc.	N	L	NA	4	Basement, Near Emergency Exit	None Detected
9	2'x4' Ceiling Tile Heavy Recessed Worm & Pinhole	Misc.	N	L	NA	4	Basement, Near Training Office	None Detected
10	2'x4' Ceiling Tile Heavy Recessed Worm & Pinhole	Misc.	N	L	NA	4	Basement, Near Storage Room	None Detected
11	2'x4' Ceiling Tile Light Recessed Worm & Pinhole	Misc.	N	L	NA	5	Basement, Near Break Room	None Detected
12	2'x4' Ceiling Tile Light Recessed Worm & Pinhole	Misc.	N	L	NA	5	1st Floor South Entryway; North of Vestibule	None Detected
13	2'x4' Ceiling Tile Light Recessed Worm & Pinhole	Misc.	N	L	NA	5	1st Floor South Entryway; North of Vestibule	None Detected
14	Drywall	Misc.	N	L	NA	6	Basement, Near Break Room	None Detected
15	Drywall	Misc.	N	L	NA	6	Basement, Above Breakroom Ceiling	None Detected
16	Drywall	Misc.	N	L	NA	6	2nd Floor Storage Room	None Detected
17	2'x4' Ceiling Tile Light Pinhole	Misc.	N	L	NA	7	Basement, Near Break Room	None Detected

1 - SM = Surfacing Material; TSI = Thermal System Insulation; MISC. = Miscellaneous Material
2 - SF = Square Feet; LF = Linear Feet
3 - N = None; L = Low; M = Medium; H = High

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Sample No.	HA Description	Type of ACBM (1)	Friable upon Demolition? (Y/N)	Damage (N,L,M,H) (3)	Quantity	HA No.	Sampling Location	Asbestos Content
18	6" Brown Cove Base & Mastic	Misc.	N	L	NA	8	Basement, Break Room	None Detected
19	Speckled Linoleum and Paper Backing	Misc.	Y	L	NA	9	Basement, Break Room	None Detected
20	Transite Paneling	Misc.	N	L	2,000 S.F.	10	Basement, Storage Room	20% Chrysotile
21	Textured Spray-on Paint	S.M.	Y	L	1,000 S.F.	11	Basement, Storage Room	None Detected
22	Textured Spray-on Paint	S.M.	Y	L	1,000 S.F.	11	Basement, Storage Room	None Detected
23	Textured Spray-on Paint	S.M.	Y	L	1,000 S.F.	11	Basement, Storage Room	None Detected
24	2'x4' Ceiling Tile Smooth	Misc.	N	L	NA	12	Basement, Break Room	None Detected
25	Window Caulk	Misc.	N	L	NA	13	Basement, Break Room	None Detected
26	2'x4' Ceiling Tile, Smooth and Wavy	Misc.	N	L	NA	14	1st Floor, Northwest Storage Room	None Detected
27	Window Caulk	Misc.	N	L	NA	15	1st Floor, Storage Room	None Detected
28	Dark Grey Cove Base & Mastic	Misc.	N	L	NA	16	1st Floor, Near Storage Room	None Detected
29	Dark Grey Cove Base & Mastic	Misc.	N	L	NA	16	1st Floor, Near Storage Room	None Detected
30	Dark Grey Cove Base & Mastic	Misc.	N	L	NA	16	1st Floor, Near Storage Room	None Detected
31	Textured Wall Paint	Misc.	Y	L	NA	17	2nd Floor, East Storage Room	None Detected
32	Textured Wall Paint	Misc.	Y	L	NA	17	2nd Floor, Storage Room Near Waiting Area	None Detected
33	Textured Wall Paint	Misc.	Y	L	NA	17	1st Floor, North Storage Room	None Detected
34	Linoleum, Square Pattern, Beige	Misc.	N	L	100 S.F.	18	2nd Floor, Northeast Storage Room	None Detected

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Table 1. Asbestos Homogeneous Area (HA) Bulk Sample Data Sheet

Sample No.	HA Description	Type of ACBM (1)	Friable upon Demolition? (Y/N)	Damage (N,L,M,H) (3)	Quantity	HA No.	Sampling Location	Asbestos Content
35	12"x12" Floor Tile Grey & Mastic	Misc.	N	L	100 S.F.	19	2nd Floor, Storage Room	None Detected
36	Plaster Walls	S.M.	N	L	NA	20	2nd Floor, Storage Room	None Detected
37	Plaster Walls	S.M.	N	L	NA	20	2nd Floor, Storage Room Near Waiting Area	None Detected
38	Plaster Walls	S.M.	N	L	NA	20	Basement, Southwest Wall	None Detected
39	Plaster Walls	S.M.	N	L	NA	20	1st Floor, Southwest Storage Room	None Detected
40	Plaster Walls	S.M.	N	L	NA	20	Foyer Near Street Entrance	None Detected
41	12"x12" Grey Floor Tile & Yellow Mastic	Misc.	N	N	100 S.F.	21	Ground Level, Near East Emergency Exit Beneath Blue Carpet	None Detected
42	12"x12" Green Floor Tile & Mastic	Misc.	N	N	100 S.F.	22	1st Floor, Main EntranceBeneath Grey Carpet	None Detected
43	Grey Speckled Linoleum	Misc.	N	N	25 S.F.	23	1st Floor, Restroom near Waiting Area	None Detected
44	9"x9" Green & Black Floor Tile & Mastic	Misc.	N	N	25 S.F.	24	1st Floor, East Central Mechanical Room	4% Chrysotile
45	Linoleum, Grey with Small Specks	Misc.	N	N	1,000 S.F.	25	1st Floor, Exam Room #6	None Detected
46	12"x12" White Ceiling Tile with Holes	Misc.	N	L	100 S.F.	26	1st Floor, Mechanical Room near West End	None Detected
47	Black Sheeting	Misc.	N	L	Unk	27	2nd Floor, Above Drop Ceiling, North Storage Room	None Detected
48	Blown-in Insulation	Misc.	N	L	Unk	28	2nd Floor, Above Drop Ceiling, North Storage Room	None Detected
49	12"x12" White Ceiling Tiles, Fibreboard	Misc.	Y	H	Unk	29	2nd Floor, Above Drop Ceiling Above Restrooms	None Detected
50	Ceiling Plaster	S.M.	N	H	Throughout	30	2nd Floor, Above Drop Ceiling Above Restrooms	None Detected
51	Ceiling Plaster	S.M.	N	H	Throughout	30	2nd Floor, Above Drop Ceiling Above Restrooms	None Detected

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PROJECT NAME: 1436 Locust Street ACM and LBP Survey
PROJECT NUMBER: 18-1869-02E
COLLECTED BY: Scott Dombrowski
DATE: 1/7/2019 & 1/8/2019
ANALYZED BY: EMSL

Table 1. Asbestos Homogeneous Area (HA) Bulk Sample Data Sheet

Sample No.	HA Description	Type of ACBM (1)	Friable upon Demolition? (Y/N)	Damage (N,L,M,H) (3)	Quantity	HA No.	Sampling Location	Asbestos Content
52	Ceiling Plaster	S.M.	N	H	Throughout	30	2nd Floor, Above Drop Ceiling Above Restrooms	None Detected
53	Exterior Window Caulk / Glazing	Misc.	N	H	NA	31	Northwest Corner of Building	2% Chrysotile
54	Exterior Window Caulk / Glazing	Misc.	N	H	NA	31	Northwest Corner of Building	<1% Chrysotile
55	Exterior Window Caulk / Glazing	Misc.	N	H	NA	31	Southwest Corner of Building	None Detected

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3 - N = None; L = Low; M = Medium; H = High

ATTACHMENT B

ASBESTOS LABORATORY RESULTS
AND
CHAINS OF CUSTODY

EMSL Analytical, Inc.

6340 CastlePlace Dr. Indianapolis, IN 46250

Tel/Fax: (317) 803-2997 / (317) 803-3047

http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order:	161900446
Customer ID:	PATR50
Customer PO:	
Project ID:	

Attention:	Scott Dombrowski	**Phone:**	(317) 576-8058
	Patriot Engineering & Environmental Inc.	**Fax:**	(317) 570-7182
	6150 E. 75 Street	**Received Date:**	01/09/2019 10:55 AM
	Indianapolis, IN 46250	**Analysis Date:**	01/15/2019
		Collected Date:	01/07/2019
Project:	18-1869-02F / 1436 Locust St.		

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
001-Cove Base *161900446-0001*	Basement, Athletic Training Office - 4" Brown Covebase & Mastic	Brown Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
001-Mastic *161900446-0001A*	Basement, Athletic Training Office - 4" Brown Covebase & Mastic	Tan Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
002-Cove Base *161900446-0002*	Basement, Near Emergency Exit - 4" Brown Covebase & Mastic	Brown Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
002-Mastic *161900446-0002A*	Basement, Near Emergency Exit - 4" Brown Covebase & Mastic	Tan Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
003-Cove Base *161900446-0003*	2nd Floor, Conference Rm Storage Rm - 4" Brown Covebase & Mastic	Brown Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
003-Mastic *161900446-0003A*	2nd Floor, Conference Rm Storage Rm - 4" Brown Covebase & Mastic	Tan Non-Fibrous Homogeneous	HA: 1	100% Non-fibrous (Other)	None Detected
004-Cove Base *161900446-0004*	Basement, Men's Restroom - 4" Light Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
004-Mastic *161900446-0004A*	Basement, Men's Restroom - 4" Light Gray Covebase & Mastic	White Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
005-Cove Base *161900446-0005*	Basement, Women's RR - 4" Light Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
005-Mastic *161900446-0005A*	Basement, Women's RR - 4" Light Gray Covebase & Mastic	Tan Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2019 15:52:44

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6340 CastlePlace Dr. Indianapolis, IN 46250
Tel/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order: 161900446
Customer ID: PATR50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
006-Cove Base *161900446-0006*	2nd Floor Conference Room - 4" Light Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
006-Mastic *161900446-0006A*	2nd Floor Conference Room - 4" Light Gray Covebase & Mastic	White Non-Fibrous Homogeneous	HA: 2	100% Non-fibrous (Other)	None Detected
007-Mastic *161900446-0007*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Yellow Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
007-Floor Tile *161900446-0007A*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Green Non-Fibrous Homogeneous	HA: 3	96% Non-fibrous (Other)	4% Chrysotile
007-Mastic *161900446-0007B*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
007-Floor Tile *161900446-0007C*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous	HA: 3	97% Non-fibrous (Other)	3% Chrysotile
007-Mastic *161900446-0007D*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
007-Leveler *161900446-0007E*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Gray Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
007-Mastic *161900446-0007F*	Basement, S Office - 9"x9" Green/Black FT & Mastic	Yellow Non-Fibrous Homogeneous	HA: 3	100% Non-fibrous (Other)	None Detected
008 *161900446-0008*	Basement, Near Emergency Exit Door - 2'x4' CT Heavy Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	30% Cellulose 50% Min. Wool HA: 4	15% Perlite 5% Non-fibrous (Other)	None Detected
009 *161900446-0009*	Basement, Near Training Office - 2'x4' CT Heavy Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	30% Cellulose 50% Min. Wool HA: 4	15% Perlite 5% Non-fibrous (Other)	None Detected
010 *161900446-0010*	Basement, Near Storage Room - 2'x4' CT Heavy Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	20% Cellulose 60% Min. Wool HA: 4	15% Perlite 5% Non-fibrous (Other)	None Detected
011 *161900446-0011*	Basement Near Break Room - 2'x4' CT Light Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool HA: 5	15% Perlite 5% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2019 15:52:44

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EMSL Order: 161900446
Customer ID: PATR50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
012 *161900446-0012*	2nd Floor S Window Wall - 2'x4' CT Light Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
			HA: 5		
013 *161900446-0013*	1st Floor S Entryway N of Vestibule - 2'x4' CT Light Recessed Worm & Pinhole	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
			HA: 5		
014 *161900446-0014*	Basement Near Break Room - Drywall	Brown/White Fibrous Heterogeneous	5% Cellulose	85% Gypsum 10% Non-fibrous (Other)	None Detected
			HA: 6		
015 *161900446-0015*	Basement Above Break Room Ceiling - Drywall	Brown/White/Black Fibrous Heterogeneous	20% Cellulose	70% Gypsum 10% Non-fibrous (Other)	None Detected
			HA: 6		
016 *161900446-0016*	2nd Floor Storage Room - Drywall	Brown/White Fibrous Heterogeneous	20% Cellulose	70% Gypsum 10% Non-fibrous (Other)	None Detected
			HA: 6		
017 *161900446-0017*	Basement Near Break Room - 2'x4' CT Light Pinhole	Gray/White Fibrous Homogeneous	60% Cellulose 20% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
			HA: 7		
018-Cove Base *161900446-0018*	Basement Break Room - 6" brown Covebase & Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 8		
018-Mastic *161900446-0018A*	Basement Break Room - 6" brown Covebase & Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 8		
019-Linoleum *161900446-0019*	Basement Break Room - Speckled Linoleum & Paper Backing	Gray/Beige Fibrous Heterogeneous	25% Cellulose	75% Non-fibrous (Other)	None Detected
			HA: 9		
019-Mastic *161900446-0019A*	Basement Break Room - Speckled Linoleum & Paper Backing	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 9		
020 *161900446-0020*	Basement Storage Room - Transite Paneling	Gray Fibrous Homogeneous		80% Non-fibrous (Other)	20% Chrysotile
			HA: 10		
021 *161900446-0021*	Basement Storage Room - Textured Spray-on Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Inseparable paint / coating layer included in analysis					
			HA: 11		
022 *161900446-0022*	Basement Storage Room - Textured Spray-on Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
Inseparable paint / coating layer included in analysis					
			HA: 11		

Initial report from: 01/15/2019 15:52:44

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EMSL Order: 161900446
Customer ID: PATR50
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Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
023 *161900446-0023*	Basement Storage Room - Textured Spray-on Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 11		
024 *161900446-0024*	Basement Break Room - 2'x4' CT Smooth	Brown/White Fibrous Heterogeneous	70% Cellulose <1% Glass	20% Gypsum <1% Mica 10% Non-fibrous (Other)	None Detected
			HA: 12		
025 *161900446-0025*	Basement Break Room - Window Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 13		
026 *161900446-0026*	1st Floor N Storage Room - 2'x4' CT Smooth & Wavy	Gray/White Fibrous Homogeneous	50% Cellulose 30% Min. Wool	15% Perlite 5% Non-fibrous (Other)	None Detected
			HA: 14		
027 *161900446-0027*	1st Floor N Storage Room - Window Caulk	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 15		
028-Cove Base *161900446-0028*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
028-Mastic *161900446-0028A*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
029-Cove Base *161900446-0029*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
029-Mastic *161900446-0029A*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	Tan Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
030-Cove Base *161900446-0030*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
030-Mastic *161900446-0030A*	1st Floor N Storage Room - 4" Dark Gray Covebase & Mastic	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 16		
031 *161900446-0031* *Inseparable paint / coating layer included in analysis*	2nd Floor E Storage Room - Textured Wall Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 17		
032 *161900446-0032* *Inseparable paint / coating layer included in analysis*	2nd Floor Storage Room Near Waiting Area - Textured Wall Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 17		
033 *161900446-0033*	1st Floor N Storage Room - Textured Wall Paint	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2019 15:52:44

EMSL Analytical, Inc.
6340 CastlePlace Dr. Indianapolis, IN 46250
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http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order: 161900446
Customer ID: PATR50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 17		
034-Linoleum *161900446-0034*	2nd Floor NE Storage Room - Linoleum Square Pattern, Beige	Beige Fibrous Heterogeneous	20% Cellulose HA: 18	80% Non-fibrous (Other)	None Detected
034-Mastic *161900446-0034A*	2nd Floor NE Storage Room - Linoleum Square Pattern, Beige	Yellow Non-Fibrous Homogeneous	HA: 18	100% Non-fibrous (Other)	None Detected
035-Floor Tile *161900446-0035*	2nd Floor NE Storage Room - 12"x12" Grey FT & Mastic	Gray Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
035-Mastic *161900446-0035A*	2nd Floor NE Storage Room - 12"x12" Grey FT & Mastic	Yellow Non-Fibrous Homogeneous	HA: 19	100% Non-fibrous (Other)	None Detected
036-Finish Coat *161900446-0036*	2nd Floor NE Storage Room - Plaster Walls	White Non-Fibrous Homogeneous	HA: 20	10% Quartz 90% Non-fibrous (Other)	None Detected
036-Base Coat *161900446-0036A*	2nd Floor NE Storage Room - Plaster Walls	Gray Non-Fibrous Homogeneous	<1% Hair HA: 20	20% Quartz 80% Non-fibrous (Other)	None Detected
037-Finish Coat *161900446-0037*	2nd Floor Storage Room Near Waiting Area - Plaster Walls	White Non-Fibrous Homogeneous	HA: 20	10% Quartz 90% Non-fibrous (Other)	None Detected
037-Base Coat *161900446-0037A*	2nd Floor Storage Room Near Waiting Area - Plaster Walls	Gray Non-Fibrous Homogeneous	HA: 20	20% Quartz 80% Non-fibrous (Other)	None Detected
038-Texture *161900446-0038* *Inseparable paint / coating layer included in analysis*	Basement SW Wall - Plaster Walls	Tan Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
038-Plaster *161900446-0038A*	Basement SW Wall - Plaster Walls	Gray Non-Fibrous Homogeneous	HA: 20	20% Quartz 80% Non-fibrous (Other)	None Detected
039-Texture *161900446-0039* *Inseparable paint / coating layer included in analysis*	1st Floor SW Storage Room - Plaster Walls	White Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
039-Finish Coat *161900446-0039A*	1st Floor SW Storage Room - Plaster Walls	White Non-Fibrous Homogeneous	HA: 20	100% Non-fibrous (Other)	None Detected
039-Base Coat *161900446-0039B*	1st Floor SW Storage Room - Plaster Walls	Gray Non-Fibrous Homogeneous	HA: 20	20% Quartz 80% Non-fibrous (Other)	None Detected
040-Finish Coat *161900446-0040*	Foyer Near Street Entrance - Plaster Walls	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected

Initial report from: 01/15/2019 15:52:44

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EMSL Order: 161900446
Customer ID: PATR50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 20		
040-Base Coat *161900446-0040A*	Foyer Near Street Entrance - Plaster Walls	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
			HA: 20		
041-Mastic *161900446-0041*	Ground Level, New Emergency Exit N Side - 12"x12" Grey FT & Yellow Mastic	Gray/Clear Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
041-Floor Tile *161900446-0041A*	Ground Level, New Emergency Exit N Side - 12"x12" Grey FT & Yellow Mastic	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
041-Mastic *161900446-0041B*	Ground Level, New Emergency Exit N Side - 12"x12" Grey FT & Yellow Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 21		
042-Floor Tile *161900446-0042*	1st Floor Main Entrance Beneath Gry Carpet - 12"x12" Grey FT & Yellow Mastic	Blue/Green Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 22		
042-Mastic *161900446-0042A*	1st Floor Main Entrance Beneath Gry Carpet - 12"x12" Grey FT & Yellow Mastic	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 22		
043 *161900446-0043*	1st Floor Restroom Near Waiting Area - Grey Speckled Linoleum	Gray Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 23		
044-Floor Tile *161900446-0044*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Green Non-Fibrous Homogeneous		96% Non-fibrous (Other)	4% Chrysotile
			HA: 24		
044-Mastic *161900446-0044A*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 24		
044-Floor Tile *161900446-0044B*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous		97% Non-fibrous (Other)	3% Chrysotile
			HA: 24		
044-Mastic *161900446-0044C*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Black Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 24		
044-Felt *161900446-0044D*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected

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EMSL Order: 161900446
Customer ID: PATR50
Customer PO:
Project ID:

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

Sample	Description	Appearance	Non-Asbestos % Fibrous	Non-Asbestos % Non-Fibrous	Asbestos % Type
			HA: 24		
044-Mastic *161900446-0044E*	1st Floor E Central Mech Room - 9"x9" Green/Black FT & Mastic	Brown Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 24		
045-Linoleum *161900446-0045*	1st Floor Exam Room #6 - Linoleum Gy w/Small Speckles	Various Fibrous Heterogeneous	5% Synthetic 5% Glass	90% Non-fibrous (Other)	None Detected
			HA: 25		
045-Mastic *161900446-0045A*	1st Floor Exam Room #6 - Linoleum Gy w/Small Speckles	Yellow Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 25		
045-Leveler *161900446-0045B*	1st Floor Exam Room #6 - Linoleum Gy w/Small Speckles	Gray Non-Fibrous Homogeneous	10% Cellulose	90% Non-fibrous (Other)	None Detected
			HA: 25		
046 *161900446-0046*	1st Floor Mech Room Near W End - 12"x12" White CT w/Holes	Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
			HA: 26		
047 *161900446-0047*	2nd Floor Above Drop Ceiling N Storage Room - Black Sheeting	Brown/Black Fibrous Homogeneous	60% Cellulose	40% Non-fibrous (Other)	None Detected
			HA: 27		
048 *161900446-0048*	2nd Floor Above Drop Ceiling N Storage Room - Blown-in Insulation	Gray/White/Black Fibrous Homogeneous	98% Min. Wool	2% Non-fibrous (Other)	None Detected
			HA: 28		
049 *161900446-0049*	2nd Floor Above Drop Ceiling, Above RRs - 12"x12" White Ceiling Fiberboard	Brown/White Fibrous Homogeneous	98% Cellulose	2% Non-fibrous (Other)	None Detected
			HA: 29		
050 *161900446-0050*	2nd Floor Above Drop Ceiling, Above RRs - Ceiling Plaster	White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
			HA: 30		
051 *161900446-0051*	2nd Floor Above Drop Ceiling, Above RRs - Ceiling Plaster	White Non-Fibrous Homogeneous		10% Quartz 90% Non-fibrous (Other)	None Detected
			HA: 30		
052 *161900446-0052* *Inseparable paint / coating layer included in analysis*	2nd Floor Above Drop Ceiling, Above RRs - Ceiling Plaster	Gray Non-Fibrous Homogeneous		20% Quartz 80% Non-fibrous (Other)	None Detected
			HA: 30		
053-Glazing *161900446-0053*	NW Corner of Building - Exterior Window Caulk / Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
			HA: 31		
053-Caulk *161900446-0053A*	NW Corner of Building - Exterior Window Caulk / Glazing	Tan Non-Fibrous Homogeneous		98% Non-fibrous (Other)	2% Chrysotile

Initial report from: 01/15/2019 15:52:44

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http://www.EMSL.com / indianapolislab@emsl.com

EMSL Order:	161900446
Customer ID:	PATR50
Customer PO:	
Project ID:	

Test Report: Asbestos Analysis of Bulk Materials via EPA 600/R-93/116 Method using Polarized Light Microscopy

			Non-Asbestos		Asbestos
Sample	**Description**	**Appearance**	**% Fibrous**	**% Non-Fibrous**	**% Type**
			HA: 31		
054 *161900446-0054*	NW Corner of Building - Exterior Window Caulk / Glazing	Gray/White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	<1% Chrysotile
			HA: 31		
055 *161900446-0055*	SW Corner of Building - Exterior Window Caulk / Glazing	White Non-Fibrous Homogeneous		100% Non-fibrous (Other)	None Detected
			HA: 31		

Analyst(s)
Jadda Moffett (15)
Paul Rihm (76)

Richard Harding, Laboratory Manager
or Other Approved Signatory

EMSL maintains liability limited to cost of analysis. The above analyses were performed in general compliance with Appendix E to Subpart E of 40 CFR (previously EPA 600/M4-82-020 "Interim Method"), but augmented with procedures outlined in the 1993 ("final") version of the method. This report relates only to the samples reported above, and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client. All samples received in acceptable condition unless otherwise noted. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the federal government. EMSL recommends gravimetric reduction for all non-friable organically bound materials prior to analysis. Estimation of uncertainty is available on request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN NVLAP Lab Code 200188-0, AZ0939, CA 2575, CO AL-15132, TX 300262, LA 04135

Initial report from: 01/15/2019 15:52:44

OrderID: 161900446

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (*Lab Use Only*): 161900446

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Company : Patriot Engineering	**EMSL-Bill to:** ☒ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6150 E. 75th Street	
City: Indpls **State/Province:** IN.	**Zip/Postal Code:** 46250 **Country:** U.S.A.
Report To (Name): Scott L. Dombrowski	**Telephone #:** 317-910-0092
Email Address: sdombrowski@patriateng.com	**Fax #:** **Purchase Order:**
Project Name/Number: 18-1869-02E	**Please Provide Results:** ☐ Fax ☒ Email
U.S. State Samples Taken: INDIANA	**CT Samples:** ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* – Please Check

☐ 3 Hour ☐ 6 Hour ☐ 24 Hour ☐ 48 Hour ☐ 72 Hour ☐ 96 Hour ☒ 1 Week ☐ 2 Week

*For TEM Air 3 hr through 6 hr, please call ahead to schedule.*There is a premium charge for 3 Hour TEM AHERA or EPA Level II TAT. You will be asked to sign an authorization form for this service. Analysis completed in accordance with EMSL's Terms and Conditions located in the Analytical Price Guide.

PLM - Bulk (reporting limit)	TEM – Bulk
☒ PLM EPA 600/R-93/116 (<1%)	☐ TEM EPA NOB – EPA 600/R-93/116 Section 2.5.5.1
☐ PLM EPA NOB (<1%)	☐ NY ELAP Method 198.4 (TEM)
Point Count ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ Chatfield Protocol (semi-quantitative)
Point Count w/Gravimetric ☐ 400 (<0.25%) ☐ 1000 (<0.1%)	☐ TEM % by Mass – EPA 600/R-93/116 Section 2.5.5.2
☐ NIOSH 9002 (<1%)	☐ TEM Qualitative via Filtration Prep Technique
☐ NY ELAP Method 198.1 (friable in NY)	☐ TEM Qualitative via Drop Mount Prep Technique
☐ NY ELAP Method 198.6 NOB (non-friable-NY)	**Other**
☐ OSHA ID-191 Modified	☐
☐ Standard Addition Method	

☒ **Check For Positive Stop – Clearly Identify Homogenous Group** **Date Sampled:** 1/7/19

Samplers Name: Scott L. Dombrowski **Samplers Signature:** Scott L. Dombrowski

Sample #	HA #	Sample Location	Material Description
001	1	Basement, Athletic Training Office	4" Brown Cove Base : Mastic
002	↓	Basement, Near Emergency Exit	↓
003	↓	2nd Floor, Conference Rm Storage Rm	↓
004	2	Basement, Men's Restroom	4" Light Gray Cove Base : Mastic
005	↓	Basement, Women's RR	↓
006	↓	2nd Floor Conference Room	↓
007	3	9"x9" Green/Black F.T. : Mastic	↔ Basement, S. office
008	4	2'x4' C.T. Heavy Recessed Wave : Pinhole	↔ Basement, Near Emergency Exit Door
009	↓	↓	↔ Basement, Near Training Office
010	↓	↓	↔ Basement, Near Storage Room

Client Sample # (s): 001 - **Total # of Samples:** 55

Relinquished (Client): Scott L. Dombrowski **Date:** 1/9/19 **Time:** 10:55

Received (Lab): S Brown **Date:** 1-9-19 **Time:** 1055 MI

Comments/Special Instructions: please provide invoice w/ results and cc ap@patriateng.com

OrderID: 161900446

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (*Lab Use Only*):

0446

EMSL ANALYTICAL, INC.
200 ROUTE 130 NORTH
CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
FAX: (856) 786-5974

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
011	5	Basement Near Break Room	2'x4' C.T. Light Pinhole
012	↓	2nd Floor S Window Walling	↓
013	↓	1st Floor S Entrance, N. of Vestibule	↓
014	6	Basement Near Break Room	Drywall
015	↓	Basement Above Break Room Ceiling	↓
016	↓	2nd Floor Storage Room	↓
017	7	Basement, Near Break Room	2'x4' C.T. Light Pinhole
018	8	Basement, Break Room	6" Brown Cove Base & Mastic
019	9	Speckled Linoleum & Paper Backing	⟷ Basement Break Room
020	10	Basement Storage Room	Transite Paneling
021	11	Basement Storage Room	Textured Spray on Paint
022	11	↓	↓
023	11	↓	↓
024	12	Basement Break Room	2'x4' C.T. Smooth
025	13	Basement Break Room	Window Caulk
026	14	1st Floor, North Storage Room	2'x4' C.T. Smooth & Wavy
027	15	↓	Window Caulk
028	16	↓	4" Dark Grey Cove Base & Mastic
029	↓	↓	↓
030	↓	↓	↓
031	17	2nd Floor, ~~East~~ West Storage Room	Textured Wall Paint
032	↓	2nd Floor, Storage Room Near Waiting Area	↓
033	↓	1st Floor, ~~South~~ North Storage Room	↓

***Comments/Special Instructions:**

Page _____ of _____ pages

OrderID: 161900446

EMSL ANALYTICAL, INC.
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Asbestos Bulk Building Material Chain of Custody

EMSL Order Number (*Lab Use Only*): 0446

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CINNAMINSON, NJ 08077
PHONE: (800) 220-3675
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Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	HA #	Sample Location	Material Description
034	18	2nd Floor, North East Storage Room	Linoleum Square Pattern, Beige
035	19	2nd Floor, N.E. Stage Room	12"x12" Grey F.T. : Mastic
036	20	2nd Floor, N.E. Stage Room	Plaster Walls
037	20	2nd Floor, Stage Room Near Waiting Area	↓
038	20	Basement, S.W. Wall	
039	20	1st Floor, S.W. Stage Room	
040	20	Foyer Near Street Entrance	
041	21	Ground Level, New Emergency Exit N. Side	12"x12" Gray F.T. & Mastic Yellow
042	22	1st Floor, Main Entrance Beneath Gray Carpet	12"x12" Green F.T. : Mastic
043	23	1st Floor, Restroom Near Waiting Area	Grey Speckled Linoleum
044	24	1st Floor, East Central Mech. Room	9"x9" Green/Black F.T. : Mastic
045	25	1st Floor, Exam Room #6	Linoleum Gray w/ Small Speckles
046	26	1st Floor, Mech. Room Near West End.	12"x12" White C.T. w/ Holes
047	27	2nd Floor, Above Drop Ceiling, N. Storage RM	Black Sheeting
048	28	2nd Floor ↓	Blown-in Insulation
049	29	2nd Floor Above Drop Ceiling; Above RRs	12x12" White Ceiling Fibreboard
050	30	↓	Ceiling Plaster
051	↓		↓
052	↓	↓	
053	31	N.W. Corner of Building	Exterior Window Caulk/Glazing
054	↓	↓	↓
055	↓	S.W. Corner of Building	

***Comments/Special Instructions:**

ATTACHMENT C

LEAD BASED PAINT LABORATORY RESULTS
AND
CHAINS OF CUSTODY

EMSL Analytical, Inc.
6340 CastlePlace Dr., Indianapolis, IN 46250
Phone/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com indianapolislab@emsl.com

EMSL Order: 161900433
CustomerID: PATR50
CustomerPO:
ProjectID:

Attn: **Susan Blackmore**
Patriot Engineering & Environmental Inc.
1000-B Airport Noah Office Park
Fort Wayne, IN 46825

Phone: (260) 490-1112
Fax: (317) 570-7182
Received: 01/09/19 10:55 AM
Collected: 1/7/2019

Project: **18-1869-02E**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
L - 01 *161900433-0001*	1/7/2019 Site: BREAKROOM - WALL	1/11/2019	0.211 g	0.0095 % wt	0.062 % wt
L - 02 *161900433-0002*	1/7/2019 Site: EXAM ROOM - DOOR	1/11/2019	0.1997 g	0.010 % wt	<0.010 % wt
L - 03 *161900433-0003*	1/7/2019 Site: LOWER LEVEL - WOMEN'S RESTROOM - BRICK	1/11/2019	0.2337 g	0.21 % wt	1.5 % wt
L - 04 *161900433-0004*	1/7/2019 Site: LOWER LEVEL - MEN'S RESTROOM - BRICK	1/11/2019	0.2426 g	0.0082 % wt	0.23 % wt
L - 05 *161900433-0005*	1/7/2019 Site: 1ST FLOOR - VESTIBLE - WALL	1/11/2019	0.1997 g	0.010 % wt	<0.010 % wt
L - 06 *161900433-0006*	1/7/2019 Site: 1ST FLOOR - CORRIDOR - WALL	1/11/2019	0.2181 g	0.0092 % wt	0.12 % wt
L - 07 *161900433-0007*	1/7/2019 Site: 1ST FLOOR - EXAM RM #5 - WALL	1/11/2019	0.2184 g	0.0092 % wt	<0.0092 % wt
L - 08 *161900433-0008*	1/7/2019 Site: 1ST FLOOR - EXAM RM #1 - WALL	1/11/2019	0.2277 g	0.0088 % wt	<0.0088 % wt
L - 09 *161900433-0009*	1/7/2019 Site: 1ST FLOOR - CORRIDOR - WALL	1/11/2019	0.2336 g	0.0086 % wt	<0.0086 % wt
L - 10 *161900433-0010*	1/7/2019 Site: 1ST FLOOR - EXAM RM #2 - WALL	1/11/2019	0.2308 g	0.0087 % wt	<0.0087 % wt
L - 11 *161900433-0011*	1/7/2019 Site: 1ST FLOOR - EXAM RM #4 - WALL	1/11/2019	0.2222 g	0.0090 % wt	<0.0090 % wt

Doug Wiegand, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 01/14/2019 12:48:30

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EMSL Order: 161900433
CustomerID: PATR50
CustomerPO:
ProjectID:

Attn: **Susan Blackmore**
Patriot Engineering & Environmental Inc.
1000-B Airport Noah Office Park
Fort Wayne, IN 46825

Phone: (260) 490-1112
Fax: (317) 570-7182
Received: 01/09/19 10:55 AM
Collected: 1/7/2019

Project: **18-1869-02E**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
L - 12 *161900433-0012*	1/7/2019	1/11/2019 Site: 1ST FLOOR - EXAM RM #4 - WOOD TRIM	0.2293 g	0.22 % wt	0.67 % wt
L - 13 *161900433-0013*	1/7/2019	1/11/2019 Site: 1ST FLOOR - STORAGE RM - WALL	0.2026 g	0.0099 % wt	<0.0099 % wt
L - 14 *161900433-0014*	1/7/2019	1/11/2019 Site: 1ST FLOOR - NURSING STATION - WALL	0.224 g	0.0089 % wt	<0.0089 % wt
L - 15 *161900433-0015*	1/7/2019	1/11/2019 Site: 1ST FLOOR - NURSING STATION - WOOD TRIM	0.2364 g	0.21 % wt	0.81 % wt
L - 16 *161900433-0016*	1/7/2019	1/11/2019 Site: 1ST FLOOR - ADMIN CORRIDOR - WALL	0.1848 g	0.011 % wt	<0.011 % wt
L - 17 *161900433-0017*	1/7/2019	1/11/2019 Site: 1ST FLOOR - HALL - WALL	0.2376 g	0.0084 % wt	<0.0084 % wt
L - 18 *161900433-0018*	1/7/2019	1/11/2019 Site: 2ND FLOOR - CONFERENCE RM - WALL	0.225 g	0.0089 % wt	<0.0089 % wt
L - 19 *161900433-0019*	1/7/2019	1/11/2019 Site: 2ND FLOOR - STAIR #1 - WALL	0.2077 g	0.0096 % wt	<0.0096 % wt
L - 20 *161900433-0020*	1/7/2019	1/11/2019 Site: LOWER LEVEL - EXERCISE AREA - WALL	0.2426 g	0.0082 % wt	<0.0082 % wt
L - 21 *161900433-0021*	1/7/2019	1/11/2019 Site: LOWER LEVEL - BREAKROOM - WALL	0.1749 g	0.011 % wt	<0.011 % wt
L - 22 *161900433-0022*	1/7/2019	1/11/2019 Site: LOWER LEVEL - BREAKROOM - WOOD TRIM	0.0921 g	0.022 % wt	<0.022 % wt

Doug Wiegand, Laboratory Manager
or other approved signatory

*Analysis following Lead in Paint by EMSL SOP/Determination of Environmental Lead by FLAA. Reporting limit is 0.010 % wt based on the minimum sample weight per our SOP. Unless noted, results in this report are not blank corrected. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities. Samples received in good condition unless otherwise noted. "<" (less than) result signifies that the analyte was not detected at or above the reporting limit. Measurement of uncertainty is available upon request. The QC data associated with the sample results included in this report meet the recovery and precision requirements unless specifically indicated otherwise. Definitions of modifications are available upon request.

Samples analyzed by EMSL Analytical, Inc. Indianapolis, IN AIHA-LAP, LLC--ELLAP 157245, OH E10040

Initial report from 01/14/2019 12:48:30

EMSL Analytical, Inc.
6340 CastlePlace Dr., Indianapolis, IN 46250
Phone/Fax: (317) 803-2997 / (317) 803-3047
http://www.EMSL.com indianapolislab@emsl.com

EMSL Order: 161900433
CustomerID: PATR50
CustomerPO:
ProjectID:

Attn: **Susan Blackmore**
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Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
L - 23 *161900433-0023*	1/7/2019	1/11/2019 Site: LOWER LEVEL - BREAKROOM - METAL POST	0.193 g	0.010 % wt	<0.010 % wt
L - 24 *161900433-0024*	1/7/2019	1/11/2019 Site: LOWER LEVEL - ELEVATOR - METAL DOOR	0.0301 g	0.066 % wt	<0.066 % wt
L - 25 *161900433-0025*	1/7/2019	1/11/2019 Site: STAIRS TO 1ST FLOOR - WALL	0.2258 g	0.0089 % wt	<0.0089 % wt
L - 26 *161900433-0026*	1/7/2019	1/11/2019 Site: 2ND FLOOR - PATIENT RESTROOM - WALL	0.2287 g	0.0087 % wt	<0.0087 % wt
L - 27 *161900433-0027*	1/7/2019	1/11/2019 Site: 2ND FLOOR - STAIRWELL BY BENCH - WOOD TRIM	0.2356 g	0.0085 % wt	<0.0085 % wt
L - 28 *161900433-0028*	1/7/2019	1/11/2019 Site: LOWER LEVEL - EXERCISE RM - METAL DOOR TRIM	0.0901 g	0.022 % wt	<0.022 % wt
L - 29 *161900433-0029*	1/7/2019	1/11/2019 Site: LOWER LEVEL - RECEPTION AREA - WALL	0.1545 g	0.013 % wt	<0.013 % wt
L - 30 *161900433-0030*	1/7/2019	1/11/2019 Site: LOWER LEVEL - RECEPTION AREA - POST METAL	0.1741 g	0.011 % wt	<0.011 % wt
L - 31 *161900433-0031*	1/7/2019	1/11/2019 Site: LOWER LEVEL - RECEPTION AREA - POST BY RR	0.2268 g	0.0088 % wt	0.39 % wt
L - 32 *161900433-0032*	1/7/2019	1/11/2019 Site: LOWER LEVEL - MECHANICAL ROOM - BRICK WALL	0.2309 g	0.0087 % wt	0.025 % wt
L - 33 *161900433-0033*	1/7/2019	1/11/2019 Site: LOWER LEVEL - STAIR 1 OPENING TO BREAKROOM - WALL	0.2038 g	0.0098 % wt	<0.0098 % wt

Doug Wiegand, Laboratory Manager
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Project: **18-1869-02E**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
L - 34	1/7/2019	1/11/2019	0.2331 g	0.0086 % wt	<0.0086 % wt
161900433-0034	Site: LOWER LEVEL - KITCHEN WINDOW - WALL				
L - 35	1/7/2019	1/11/2019	0.2315 g	0.0086 % wt	<0.0086 % wt
161900433-0035	Site: LOWER LEVEL - EXERCISE AREA - WINDOW WOOD TRIM				
L - 36	1/7/2019	1/11/2019	0.2159 g	0.0093 % wt	<0.0093 % wt
161900433-0036	Site: 1ST FLOOR - VESTIBLE - WALL				
L - 37	1/7/2019	1/11/2019	0.2177 g	0.0092 % wt	<0.0092 % wt
161900433-0037	Site: 1ST FLOOR - VESTIBLE - WALL - WOOD TRIM				
L - 38	1/7/2019	1/11/2019	0.2417 g	0.0083 % wt	<0.0083 % wt
161900433-0038	Site: 1ST FLOOR - VESTIBLE - WALL				
L - 39	1/7/2019	1/11/2019	0.2313 g	0.22 % wt	0.73 % wt
161900433-0039	Site: 1ST FLOOR - VESTIBLE - WALL WOOD TRIM				
L - 40	1/7/2019	1/11/2019	0.2218 g	0.23 % wt	4.8 % wt
161900433-0040	Site: EXTERIOR NORTH - WINDOW - WOOD				
L - 41	1/7/2019	1/11/2019	0.2468 g	0.0081 % wt	<0.0081 % wt
161900433-0041	Site: EXTERIOR NORTH - RAMP RAILING - METAL				
L - 42	1/7/2019	1/11/2019	0.2345 g	0.0085 % wt	0.011 % wt
161900433-0042	Site: EXTERIOR EAST - RAMP RAILING - METAL				
L - 43	1/7/2019	1/11/2019	0.2318 g	0.0086 % wt	<0.0086 % wt
161900433-0043	Site: EXTERIOR WEST - RAMP RAILING - METAL				
L - 44	1/7/2019	1/11/2019	0.1959 g	0.010 % wt	<0.010 % wt
161900433-0044	Site: 1ST FLOOR - WAITING ROOM - KIDS AREA - DRYWALL				

Doug Wiegand, Laboratory Manager
or other approved signatory

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Project: **18-1869-02E**

Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	*Collected*	*Analyzed*	*Weight*	*RDL*	*Lead Concentration*
L - 45	1/7/2019	1/11/2019	0.2263 g	0.0088 % wt	0.049 % wt
161900433-0045	Site: 1ST FLOOR - WAITING ROOM - KIDS AREA - WOOD TRIM				
L - 46	1/7/2019	1/11/2019	0.2119 g	0.0094 % wt	<0.0094 % wt
161900433-0046	Site: 1ST FLOOR - WAITING ROOM - BACK WALL				
L - 47	1/7/2019	1/11/2019	0.2395 g	0.0084 % wt	<0.0084 % wt
161900433-0047	Site: 1ST FLOOR - WAITING ROOM - WINDOW LEDGE - WOOD				
L - 48	1/7/2019	1/11/2019	0.2328 g	0.0086 % wt	0.45 % wt
161900433-0048	Site: 1ST FLOOR - VESTIBLE FRONT - WOOD WINDOW				
L - 49	1/7/2019	1/11/2019	0.2201 g	0.0091 % wt	0.047 % wt
161900433-0049	Site: 1ST FLOOR - VESTIBLE FRONT - DRYWALL - WALL				
L - 50	1/7/2019	1/11/2019	0.2241 g	0.0089 % wt	<0.0089 % wt
161900433-0050	Site: 1ST FLOOR - VESTIBLE FRONT - PLASTER WALL				
L - 51	1/7/2019	1/11/2019	0.2271 g	0.0088 % wt	<0.0088 % wt
161900433-0051	Site: 1ST FLOOR - STORAGE RM - PLASTER WALL				
L - 52	1/7/2019	1/11/2019	0.2431 g	0.0082 % wt	0.024 % wt
161900433-0052	Site: 1ST FLOOR - STORAGE RM - WOOD WINDOW				
L - 53	1/7/2019	1/11/2019	0.2197 g	0.23 % wt	0.62 % wt
161900433-0053	Site: 1ST FLOOR - BIOHAZARD STORAGE - DRY WALL				
L - 54	1/7/2019	1/11/2019	0.1811 g	0.28 % wt	0.92 % wt
161900433-0054	Site: 1ST FLOOR - BIOHAZARD STORAGE - WOOD DOOR				
L - 55	1/7/2019	1/11/2019	0.2384 g	0.0084 % wt	<0.0084 % wt
161900433-0055	Site: LOWER LEVEL - STOARAGE RM - WALL				

Doug Wiegand, Laboratory Manager
or other approved signatory

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Test Report: Lead in Paint Chips by Flame AAS (SW 846 3050B/7000B)*

Client SampleDescription	Collected	Analyzed	Weight	RDL	Lead Concentration
L - 56	1/7/2019	1/11/2019	0.2361 g	0.0085 % wt	0.062 % wt
161900433-0056	Site: LOWER LEVEL - STORAGE RM - FLOOR				
L - 57	1/7/2019	1/11/2019	0.2385 g	0.0084 % wt	<0.0084 % wt
161900433-0057	Site: 1ST FLOOR - WAITING RM - RECEPTION DESK - DRYWALL				
L - 58	1/7/2019	1/11/2019	0.2229 g	0.0090 % wt	<0.0090 % wt
161900433-0058	Site: 1ST FLOOR - WAITING RM - PONY WALL - DRYWALL				
L - 59	1/7/2019	1/11/2019	0.2138 g	0.0094 % wt	<0.0094 % wt
161900433-0059	Site: 1ST FLOOR - WAITING RM - PONY WALL				
L - 60	1/7/2019	1/11/2019	0.2387 g	0.0084 % wt	<0.0084 % wt
161900433-0060	Site: 1ST FLOOR - WAITING RM - PONY WALL				
L - 61	1/7/2019	1/11/2019	0.1411 g	0.014 % wt	<0.014 % wt
161900433-0061	Site: 1ST FLOOR - CORRIDOR - EXAM RM - WALL				
L - 62	1/7/2019	1/11/2019	0.2289 g	0.0087 % wt	<0.0087 % wt
161900433-0062	Site: 1ST FLOOR - FURNACE RM - WALL - PLASTER				
L - 63	1/7/2019	1/11/2019	0.2205 g	0.0091 % wt	0.29 % wt
161900433-0063					

Doug Wiegand, Laboratory Manager
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Initial report from 01/14/2019 12:48:30

EMSL ANALYTICAL, INC.
LABORATORY•PRODUCTS•TRAINING

Lead (Pb) Chain of Custody

EMSL Order ID *(Lab Use Only)*: 161900433

PHONE: ( )
FAX: ( )

Company: Patriot Engineering	EMSL-Bill to: ☑ Same ☐ Different If Bill to is Different note instructions in Comments** *Third Party Billing requires written authorization from third party*
Street: 6150 e 75th Street	
City: Indlps — State/Province: IN	Zip/Postal Code: 46250 — Country: USA
Report To (Name): Susan Blackmore	Telephone #: 260-490-1112
Email Address: sblackmore @ patriotenq.com	Fax #: 260-490-2071 — Purchase Order:
Project Name/Number: 18-1869-02E	Please Provide Results: ☐ Fax ☒ Email
U.S. State Samples Taken: Indiana	CT Samples: ☐ Commercial/Taxable ☐ Residential/Tax Exempt

Turnaround Time (TAT) Options* - Please Check

☐ 3 Hour	☐ 6 Hour	☐ 24 Hour	☐ 48 Hour	☐ 72 Hour	☐ 96 Hour	☒ 1 Week	☐ 2 Week

*Analysis completed in accordance with EMSL's Terms and Conditions located in the Price Guide

Matrix	Method	Instrument	Reporting Limit	Check
Chips ☒ % by wt. ☐ mg/cm² ☐ ppm (mg/kg)	SW846-7000B	Flame Atomic Absorption	0.01%	☒
Air	NIOSH 7082	Flame Atomic Absorption	4 µg/filter	☐
	NIOSH 7105	Graphite Furnace AA	0.03 µg/filter	☐
	NIOSH 7300M/NIOSH 7303	ICP-OES	0.5 µg/filter	☐
Wipe* ASTM ☐ non ASTM ☐ *if no box checked, non-ASTM Wipe assumed	SW846-7000B	Flame Atomic Absorption	10 µg/wipe	☐
	SW846-6010B or C	ICP-OES	1.0 µg/wipe	☐
TCLP	SW846-1311/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1311/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
SPLP	SW846-1312/7000B/SM 3111B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	SW846-1312/SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
TTLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
STLC	22 CCR App. II, 7000B/7420	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	22 CCR App. II, SW846-6010B or C	ICP-OES	0.1 mg/L (ppm)	☐
Soil	SW846-7000B	Flame Atomic Absorption	40 mg/kg (ppm)	☐
	SW846-6010B or C	ICP-OES	2 mg/kg (ppm)	☐
Wastewater Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	SM3111B/SW846-7000B	Flame Atomic Absorption	0.4 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.7	ICP-OES	0.020 mg/L (ppm)	☐
Drinking Water Unpreserved ☐ Preserved with HNO_3 pH < 2 ☐	EPA 200.8	ICP-MS	0.001 mg/L (ppm)	☐
	EPA 200.9	Graphite Furnace AA	0.003 mg/L (ppm)	☐
	EPA 200.5	ICP-OES	0.003 mg/L (ppm)	☐
TSP/SPM Filter	40 CFR Part 50	ICP-OES	12 µg/filter	☐
	40 CFR Part 50	Graphite Furnace AA	3.6 µg/filter	☐
Other:				☐

Name of Sampler: Susan Blackmore — Signature of Sampler: Susan Blackmore

Sample #	Location	Volume/Area	Date/Time Sampled
L-01	Breakroom - wall	N/A	1.7.19
L-02	Exam Room - door	↓	↓

Client Sample #s: L-01 - L-02 — Total # of Samples: 02

Relinquished (Client): [signature]	Date: 1/9/19	Time: 10:55
Received (Lab): [signature]	Date: 1-9-19	Time: 1055

Comments: please cc ap@patriotenq.com and provide invoice w/results

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: 161900433

PHONE: ( )
FAX: ( )

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
L-03	Lower level - women's restroom Brick	N/A	1.7.19
L-04	Lower level - mens restroom - Brick		
L-05	1st floor vestible - wall		
L-06	1st floor coorider - wall		
L-07	1st floor exam Rm # 5 - wall		
L-08	1st floor exam Rm 1 - wall		
L-09	1st floor coorider - wall		
L-10	1st floor exam Rm #2 - wall		
L-11	1st floor exam Rm #4 - wall		
L-12	1st floor - exam Rm #4 - wood trim		
L-13	1st floor - Storage Rm - wall		
L-14	1st floor - Nursing Station - wall		
L-15	1st floor nursing station - wood trim		
L-16	1st floor Admin coorider - wall		
L-17	1st floor Hall - wall		
L-18	2nd floor conferena Rm - wall		
L-19	2nd floor Stair #1 - wall		
L-20	lower level exercise area - wall		

Comments/Special Instructions:

SECTION 01900-33

OrderID: 161900433

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: 1619000433

PHONE: ( )
FAX: ( )

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
L-21	Lower level - Breakroom - wall	N/A	1.7.19
L-22	Lower level - Breakroom - ~~metal post~~ wood trim	↓	↓
L-23	Lower Level - Breakroom - metal post	↓	↓
L-24	Lower level - Elevator - metal door	↓	↓
L-25	Stairs to 1st floor - wall	↓	↓
L-26	2nd floor - Patient Restroom - wall	↓	↓
L-27	2nd flor - Stairwell by bench - wood trim	↓	↓
L-28	lower level - exercise rm - metal door trim	↓	1.8.19
L-29	lower level - reception Area - wall	↓	↓
L-30	lower level - reception Area - post metal	↓	↓
L-31	lower level - exercise area - post by rr	↓	↓
L-32	lower level - mechanical ROOM - Brick wall	↓	↓
L-33	lower level - Stair opening to Breakroom - wall	↓	↓
L-34	lower level - kitchen window - wall	↓	↓
L-35	lower level - exercise RM area - window wood trim	↓	↓
L-36	1st floor vestible - wall	↓	↓
L-37	1st floor vestible - wall - wood trim	↓	↓
L-38	1st floor vestible - wall	↓	↓

Comments/Special Instructions:

Page 3 of 5 pages

Controlled Document — COC-25 Lead (Pb) - R8 - 7/19/2017

SECTION 01900-34

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: 161900433

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FAX: ( )

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
L-39	1st floor vestible - wall wood trim	N/A	1.8.19
L-40	exterior north window - wood		
L-41	exterior north ramp railing - metal		
L-42	exterior east ramp railing - metal		
L-43	exterior west ramp railing - metal		
L-44	1st floor - waiting room - kids area - dry wall		
L-45	1st floor - waiting room - kids area - wood trim		
L-46	1st floor - waiting room - back wall		
L-47	1st floor - waiting room - window leafe wood		
L-48	1st floor - vestible front - wood window		
L-49	1st floor - vestible front - dry wall wall		
L-50	1st floor vestible - front - plaster wall		
L-51	1st floor - storage RM - plaster wall		
L-52	1st floor - storage RM - wood window		
L-53	1st flor - Biohazard - storage - dry wall		
L-54	1st floor - Biohazard storage - wood door		
L-55	lower level - storage RM - wall		
L-56	lower level - storage RM - floor		

Comments/Special Instructions:

Page 4 of 5 pages

EMSL ANALYTICAL, INC.
LABORATORY • PRODUCTS • TRAINING

LEAD (Pb) CHAIN OF CUSTODY

EMSL ORDER ID *(Lab Use Only)*: 161900433

PHONE: ( )
FAX: ( )

Additional Pages of the Chain of Custody are only necessary if needed for additional sample information

Sample #	Location	Volume/Area	Date/Time Sampled
L-57	1st floor waiting RM- reception desk drywall	N/A	1.8.19
L-58	1st floor - waiting RM - Pony wall drywall	↓	↓
L-59	1st floor - waiting RM- Pony wall		
L-60	1st floor waiting RM - Pony wall		
L-61	1st floor Coorider exam RM - wall		
L-62	1st floor furnace RM - wall Plaster	↓	↓

Comments/Special Instructions:

Page 5 of 5 pages

SECTION 02050 - DEMOLITION

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 REMOVAL

This Section requires the removal and subsequent off-site disposal of the following:

A. Removal of existing vegetation shown on the Site Plan as to be removed.

B. Removal of concrete and asphalt paving as shown on the Site Plan.

1.2 CONDITION OF STRUCTURES

A. The Owner assumes no responsibility for the actual condition of items that are to be removed, replaced, and or repaired. Field verify condition of existing structure prior to start of any work.

1.3 PROTECTIONS

A. Provide temporary barricades and other forms of protection as required to protect the Owner's personnel and general public from injury due to demolition work.

B. Provide protective measures as required to provide free and safe passage of Owner's personnel and general public to and from the site.

C. Protect existing site utilities, which are to remain in use.

1.4 DAMAGES

A. Promptly repair all damages caused to adjacent facilities by demolition work at no cost to the Owner.

1.5 TRAFFIC

A. Conduct demolition operations and debris removal in a manner to ensure minimum interference with roads, streets, walks, lawns, and other adjacent occupied or used facilities.

1.6 UTILITY SERVICES

A. Maintain existing utilities indicated to remain. Keep in service and protect against damage during demolition operations.

PART 2: PRODUCTS (Not Applicable)
PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 02060 - REMOVAL OF ASBESTOS-CONTAINING MATERIALS

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 Drawings and Provisions:
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 Disposal:
Disposal of asbestos-containing waste is specified in Section 02070 of Asbestos-Containing Waste Materials.

PART 2: PRODUCTS.

2.1 Wetting Materials:
For wetting prior to disturbance of Asbestos-containing Materials use either amended water or a removal encapsulate:

A. Amended Water: Provide water to which a surfactant has been added. Use a mixture of surfactant and water which results in wetting of the Asbestos-Containing Material and retardation of fiber release during disturbance of the material equal to or greater than that provided by the use of one ounce of a surfactant consisting of 50% polyoxyethylene ester and 50% polyoxyethylene and mixed with five gallons of water.

2.2 Polyethylene Sheet:
A single polyethylene film in the largest sheet size possible to minimize seams, 4.0 or 6.0 mil thick as indicated, clear, frosted, or black as indicated.

2.3 Duct Tape:
Provide duct tape in 2" or 3" widths as indicated, with an adhesive which is formulated to stick aggressively to sheet polyethylene.

2.4 Disposal Bags (if any):
Provide 6 mil thick leak-tight polyethylene bags labeled as required by Section 02070 Disposal of Asbestos Containing Waste Material.

2.5 Fiberboard Drums (if any):
Provide heavy duty leak-tight fiberboard drums with tight sealing locking metal tops.

PART 3: EXECUTION.

3.1 Wet Removal:

Thoroughly wet to satisfaction of Owner's representative Asbestos-Containing Materials to be removed prior to stripping and/or tooling to reduce fiber disposal into the air. Accomplish wetting by a fine spray mist of amended water or removal encapsulate. Saturate material sufficiently to wet to the substrate without causing excess dripping. Allow time for amended water or removal encapsulate to penetrate material thoroughly. If amended water is used, spray material repeatedly during the work process to maintain a continuously wet condition. If a removal encapsulate is used, apply in strict accordance with manufacturer's written instructions. Perforate outer covering of any installation which has been painted and/or jacketed in order to allow penetration of amended water or removal encapsulate, or use injection equipment to wet material under the covering. Where necessary, carefully strip away while simultaneously spraying amended water of removal encapsulate on the installation to minimize disposal of asbestos fibers into the air.

3.2 Misting of Work Area:

Mist work area continuously with amended water whenever necessary to reduce airborne fiber levels.

SECTION 02070 - DISPOSAL OF ASBESTOS-CONTAINING MATERIALS

PART 1: GENERAL. The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 Drawings and Provisions:
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 Codes and Regulations:
Section 01090 Codes and Regulations - Asbestos Abatment describes applicable Federal, State, and Local regulations.

1.3 Description of the Work:
This section describes the disposal of Asbestos-Containing Materials. Disposal includes packaging of asbestos-containing waste materials. Disposal may be accomplished either by landfilling or converting asbestos-containing materials to non asbestos waste.

1.4 Submittals:
Before start of work: Submit the following to the Owner's Representative for review. Do not start work until these submittals are returned with Owner's Representative's action stamp indicating that the submittal is returned for unrestricted use.

A. Copy of State or Local license for waste hauler.
B. Name and address of landfill where asbestos-containing waste materials are to be buried. Include contact person and telephone number.
C. Name and address of processor where asbestos-containing waste materials are to be processed into non-asbestos waste. Include contact person and telephone number.

1. Product data on process to be used.
2. Letters or other documents from the United States Environmental Protection Agency relative to the process:
   Indicating that the process to be used can produce an asbestos-free product and is capable of satisfying the requirement for an acceptable "alternate" means of complying with Section 61.152(a) of the NESHAP for asbestos.
3. Identifying process parameters of operating conditions important to the successful operation of the process.

D. Chain of Custody Form and Form of Waste Manifest Proposed.
E. On a weekly basis submit copies of all manifests and disposal site receipts to Owner's Representative.

PART 2: PRODUCTS.

2.1 Disposal Bags (if any):
Provide 6 mil thick leak-tight polyethylene bags labeled with three labels of required text.

PART 3: EXECUTION.

3.1 Waste Hauling:
All waste is to be hauled by a waste hauler with all required licenses from all State and Local Authorities with jurisdiction.

3.2 Receipts:
Retain receipts from landfill or processor for the materials which are disposed of.

3.3 Owner's Receipts:
At completion of hauling and disposal of each load, submit a copy of the waste manifest, chain of custody form, and landfill receipt to the Owner's representative.

SECTION 02100 - CLEARING OF SITE

PART 1. GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL CONTRACTORS WORK

A. The Contractor shall take over the site in the condition existing at the time of the award of the contract and shall perform demolition as specified or required and shall remove trees, etc. which may interfere with the construction or his operations.

B. Contractor shall demolish and remove all obstacles and take care that all new footings and foundations are carried to undisturbed earth below any fill. Any debris shall be removed from the premises and not used for backfill.

C. Prospective bidders are required to visit the site and familiarize themselves with existing conditions before submitting their proposals and failure to do so shall not operate to relieve the successful bidder from performing such work as necessary to properly prepare the site to receive the work in accordance with the intent of the drawings and these specifications.

D. All debris will be removed from the property immediately. Burning on the site will not be permitted. Care shall be taken to keep the nuisance of trash, noise, and dust at a minimum.

E. Damage inflicted to areas, which are not to receive work, shall be repaired or replaced by the Contractor as required.

F. The Contractors shall exercise special care to prevent damage to trees which are to remain on or near the site, during the progress of his operations. Trees which might be injured shall be protected in a manner satisfactory to the Engineer.

G. When trees are shown to be removed, it shall mean grub out stumps and remove from property.

H. All excavated and excess soil, cinders, gravel and debris shall be removed from the property.

I. The mentioned items of work herein and on the drawings are in general to be used as a check list and are not intended to particularly mention all items of work to be performed. All work and materials required to bring the project area to an approved state of completeness shall be performed by the Contractor at no additional cost to the Owner.

1.2 SCOPE

A. General Contractor shall furnish all materials and perform all services required for clearing of the site prior to excavation operations and shall include all items as indicated on the drawings and specified herein.

1.3 CLEARING AND STRIPPING

A. Strip the entire project site of trees, cinders, fill debris, existing sidewalks, paving, etc., as required or indicated on the Drawings, including those shown on Mechanical and

Electrical Drawings, if indicated, as being by the General Contractor.

B. Clearing shall consist of the removal and disposal of all encumbrances to a depth shown below finished grades, floor slabs, or pavement subgrades, whichever is used in the area under construction.

1.4 GRUBBING

A. Grubbing shall consist of the removal of sod, trees, weeds and other vegetation, stones and rocks within the contract limits. Sod and topsoil shall be removed to a depth of at least twelve inches (12") below the existing grades and material stock piled for use in finish grading operation.

B. Rubbish deposits, if encountered, shall be removed to their full depth under areas which are to be paved or have structures on them. Replace deposit with bank run gravel, compacted.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

SECTION 02200 - SOIL CONDITIONS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 GENERAL SCOPE OF WORK

A. Complete filling, backfilling, rough grading, finish grading, earth fill, all as required, indicated and specified herein.

B. Excavate under the entire area of the building to the depth required for footings and slabs and such other excavations necessary for the installation of the work shown on the drawings and stated in the attached geotechnical engineering report.

C. All topsoil shall be removed under the building proper.

D. Soil remediation, compaction and testing shall be done in accordance with the report stated below:
Geotechnical Engineering Investigation
Wabash Valley Health Clinic Addition
1426 Locust Street
Terre Haute, Indiana
Patriot Project No. 19-0837-02G
Material used for backfilling and under concrete slabs-on-grade shall be as stated on the drawings and in the attached Geotechnical Engineering Investigation.
Refer to Section 02205 of the written specifications.

E. The bottom of all excavated trenches for footings shall be subjected to a minimum of two passes by a vibratory compactor. Densification of loose granular deposits shall be done in accordance with Section 1.6.

1.2 EXCAVATING

Excavate under the entire area of the building to the depth required for footings and slabs, and such other excavations necessary for the installation of work as shown on the drawings. Soil taken from excavations shall be used for backfill only. Any excess earth shall be removed from the site, or deposited in other locations on the site.

Excavations for walls shall be wide enough to permit the removal of forms, pointing up, etc. and at no point less than 24 inches from the face of the wall. Trenches for footings may be trimmed to exact size of the footings where earth is solid enough to hold it's shape during the placing of the footing.

Excavate to a depth at least 8" below bottom of concrete slabs on fill. All exterior slabs-on-grade shall have at least 8" of compacted granular fill for soil drainage purposes.

If made ground or pockets of soft loam are encountered in bottoms of any footing trenches, the Contractor shall immediately notify the Engineer in order that provisions may be made for carrying footings deeper at such points.

Excavations shall be properly shored and braced where necessary to prevent caving in and the Contractor shall do all necessary bailing or pumping required to keep the excavations free from water.

Any sewers, pipes, or conduits in active use, encountered during excavation are to be properly diverted, so as not to interfere with the construction, and are to be left in a working condition. Sewers, pipes, or conduits that have been abandoned, shall be cut off outside building line and securely plugged at ends. If such are encountered in course of excavation, it shall be the contractors duty to ascertain from the proper authorities whether they are in active use or have been abandoned, before proceeding as above specified.

Any piping, conduits, etc. encountered in excavating, unless required to be removed, shall be temporarily supported and maintained until permanent support has been restored. (See Mechanical - Division 15)

1.3 TESTING

The Owner will pay directly for all cost associated to have a soil testing company provide soil testing on this project. Field density testing to be performed in accordance with ASTM D6938, nuclear gauge method, or ASTM 1566, sand cone method. The frequency of the testing should produce a minimum of one (1) field density rest result per 2,500 square feet, per material lift, and as necessary to adequately represent the area and compaction effort.

1.4 FILLING AND BACKFILLING

After forms are removed and water proofing applied where necessary and allowed to dry, fill between exterior walls, and earth banks with earth removed from excavation of course pit run gravel to a point 24" below finish grade line.

Filling shall be placed in layers of about 8" carefully tamped and flooded. Under no circumstances shall rubbish or debris from the building be used for backfilling or grading. Compaction as stated in Section 1.6 for each layer.

If fill is to be provided on both sides of walls, fill on both sides at same time. When filling around piers, fill in equal layers around perimeter.

1.5 GRADINGS

Finish grades indicated on the drawings are finished topsoil elevations. Rough grading shall be done to within one foot of these elevations and shall consist of evenly grading the site to one foot below the finish grade contours, with clean earth fill removed from excavation or brought to site from other source, ready for topsoiling operations. Rough grading to slope away from walls to provide water shed. Take care during grading operations to protect all constructed items and repair if they are damaged.

1.6 SITE SOIL PREPARATION

In order to insure that the footing foundation system is founded on well compacted soil and the floor system is founded on well compacted soil, densification of loose granular deposits is to be undertaken by mechanical compaction in accordance with the following procedure as directed by the soil testing company hired by the General Contractor for this project:

A. The bottom surface of the excavation is to be subjected to systematic compaction by means of a vibratory compactor. The compaction operations are to be continued until the material immediately below the bottom of the excavation has been compacted to a minimum of 100% of maximum density as determined in accordance with American Society for Testing and Materials D-698, Method "A" or Method "C" which ever is applicable.
No fewer than 6 passes are to be made in any event.

B. Subsequent to, the bottom of the excavation compaction, systematic backfill operations are to be carried out on a lift-by-lift basis, employing clean granular material. Compaction of individual lifts is to be carried out by the previously referenced vibratory compaction device and material density within the backfill structure is to be verified at a minimum of 100% of maximum density. Backfill operations are to be carried to underside of floor slab.

For general area improvements such as pavements, drives, etc., the materials existing from subgrade elevation to minus 12 inches, must be compacted to exhibit an in-place density of not less than 95 percent of maximum density as determined in accordance with the requirements of American Society for Testing and Materials D-698, Method "A" or Method "C" whichever is applicable. Normal stripping operations of sod and vegetation shall supersede fill and compaction.

The General Contractor shall keep a log showing how many passes the compactor has made each day and the location in which this compaction took place. The log shall further show the location of all density tests and proctor tests. At the end of each working day, the log shall be filled out and a copy sent to the Structural Engineer.

1.7 FINISH GRADING

Finish grading, minimum depth 12" shall be done with top soil material stripped from site during preliminary work and stockpiled for this use or shall be clean top soil obtained from other source and hauled to site. Top soil shall be spread and rolled to the contours indicated and to satisfaction of the Engineer ready for seeding as specified.

PART 2: PRODUCTS (Not Applicable)

PART 3: EXECUTION (Not Applicable)

END OF SECTION

PATRIOT ENGINEERING and Environmental, Inc.
Engineering Value for Project Success
Consulting Environmental, Geotechnical and Materials Engineers

Report of
Geotechnical Engineering Investigation
Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, Indiana
Patriot Project No. 19-0837-02G

Prepared For:

Wabash Valley Health Center
1436 Locust Street
Terre Haute, IN 47807
Attn: Charles Welker

Prepared By:

Patriot Engineering and Environmental, Inc.
1359 N. Aberdeen Ave.
Terre Haute, IN 47804

July 5, 2019

PATRIOT ENGINEERING and ENVIRONMENTAL, Inc.

Engineering Value for Project Success

July 5, 2019

Wabash Valley Health Center
1436 Locust Street
Terre Haute, IN 47807
Attn: Charles Welker

RE: Report of
Geotechnical Engineering Investigation
Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, Indiana
Patriot Project No. 19-0837-02G

Dear Mr. Welker:

Attached is the report of our subsurface investigation for the proposed addition to the Wabash Valley Health Clinic in Terre Haute, Indiana. This investigation was completed in general accordance with our Proposal No. P19-0900-02G dated May 24, 2019. Approval to conduct this investigation was afforded in the form of a signed acceptance agreement dated May 28th.

This report includes detailed and graphic logs of the test borings drilled at the proposed project site. Also included in the report are the results of laboratory tests performed on samples obtained from the site, and geotechnical recommendations pertinent to the site development, design, and construction.

We appreciate the opportunity to perform this geotechnical engineering investigation and look forward to working with you during the construction phase of the project. If you have any questions regarding this report or if we may be of any additional assistance regarding any geotechnical aspect of the project, please do not hesitate to contact our office.

Respectfully submitted,
Patriot Engineering and Environmental, Inc.

Timothy C. Govert
Region Manager

RONALD WILLIAM SPIVEY REGISTERED No. 9700221 STATE OF INDIANA PROFESSIONAL ENGINEER

Ronald W. Spivey, P.E.
Senior Project Engineer

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REPORT OF GEOTECHNICAL ENGINEERING INVESTIGATION

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, Indiana
Patriot Project No. 19-0837-02G

1.0 INTRODUCTION

1.1 General

The Wabash Valley Health Center is planning an addition to their clinic located at 1436 Locust Street in Terre Haute, Indiana. The building addition will affix to the west side of the existing facility, covering a footprint area of approximately 36-ft. by 85-ft. The project will also include a stairway addition to the north side of the existing building as well as parking and civil stormwater management improvements. Wabash Valley Health Clinic has employed Patriot Engineering & Environmental, Inc. (Patriot) to perform a Geotechnical investigation of the proposed project site to assist in the design and construction planning process. The results of our geotechnical engineering investigation for the project are presented in this report.

1.2 Purpose and Scope

The purpose of this investigation has been to determine the general near surface and subsurface conditions within the project area and to develop the geotechnical engineering recommendations necessary for the design and construction of the building addition, building improvements and civil developments associated with the project. This was achieved by drilling test borings, and by conducting laboratory tests on samples collected from the borings. This report contains the results of our findings, an engineering interpretation of these results with respect to the available project information, and recommendations to aid in the design and construction of the proposed improvements and additions.

2.0 PROJECT INFORMATION

The project site is located between Locust Street to the south and 1st Avenue to the north and bisected by a parallel alley which runs between the building and the proposed northside parking areas. The site is situated in the middle of the block between N. 14th Street and N. 15th Street.

The proposed project is expected to include an approximately 36’ x 85’ building addition

on the west side of the existing facility, as well as a stairway to the northside entrance. The overall project would also include new parking areas and related stormwater management improvements, most likely in the form of drywells. The building addition will involve a raised first floor to match that of the existing building. The anticipated average grade raise would be 6.5-feet. Footings for the new addition are going to be designed to bear away from the existing building which is supported on a basement level which is situated half-height below grade. The purpose of this design is to avoid surcharge lateral loads being applied on the basement walls by the new footings.

Based on information furnished by Michael Waldbieser, the Project Structural Engineer, we expect that the proposed structure will have wall loads not exceeding 3.1-kips per lineal feet (klf) and isolated column loads not exceeding 25-kips. We have assumed that floor loads will not exceed 200-pounds per square foot (psf). The proposed building addition's finished floor elevation is expected to match the first floor elevation of the existing building, which is about 6.5-feet above the exterior surrounding grade. The grade raise would be accomplished by stem walls extending upward with interior structural backfill to support the slab.

3.0 INVESTIGATIONAL PROCEDURES

3.1 Field Work

A total of **five** (**5**) borings were drilled, sampled, and tested at the project site on June 9, 2019, at the approximate locations shown on the Boring Location Map in Appendix A. Each of the borings was drilled at the preplanned locations marked by our representative, except for Boring B-1 which was offset after meeting auger refusal just below the surface on apparent concrete. That boring was adjusted about 8-feet to the west to afford full depth drilling. Borings B-1 and B-2 representing the building addition were drilled to a depth of 25-feet below the surface. The other borings representing pavements and stormwater management features were drilled to 15-feet below the surface. All depths are given as feet below the existing ground surface.

The borings were advanced using 3¼" I.D. (inside diameter) hollow-stem augers. Samples were recovered in the undisturbed material below the bottom of the augers using the standard drive sample technique in accordance with ASTM D 1586-74. A 2" O.D. (outside diameter) by 1-$^{3}/_{8}$" I.D. split-spoon sampler was driven a total of 18-inches with the number of blows of a 140-pound hammer falling 30-inches recorded for each 6-inches of penetration. The sum of blows for the final 12-inches of penetration is the

Standard Penetration Test result commonly referred to as the N-value (or blow-count). Split-spoon samples were recovered at 2.5-feet intervals, beginning at a depth of 1-foot below the existing surface grade, extending to a depth of 10-feet, then at 5-foot intervals thereafter to the termination of the boring. Water levels were monitored at each borehole location during drilling and upon completion of the boring. The boreholes were backfilled with auger cuttings prior to demobilization for safety considerations.

The positions of the borings have been located using a handheld global positioning system (GPS). The approximate latitude and longitude of the borings are noted on the individual boring logs, and in the following table.

Table 3.1 – *Boring Coordinates*

Boring Number	Latitude (North)	Longitude (West)
B-1*	39° 28.676’	87° 23.686’
B-2	39° 28.667’	87° 23.686’
B-3	39° 28.667’	87° 23.698’
B-4	39° 28.693’	87° 23.659’
B-5	39° 28.695’	87° 23.684’

*coordinates of offset/completed boring

3.2 Laboratory Evaluation

Upon completion of the boring program, all of the samples retrieved during drilling were returned to *Patriot*’s soil testing laboratory where they were visually examined and classified. A laboratory-generated log of each boring was prepared based upon the driller’s field log, laboratory test results, and our visual examination. Test boring logs and a description of the classification system are included in Appendix A in this report. Indicated on each log are: the primary strata encountered, the depth of each stratum change, the depth of each sample, the Standard Penetration Test results, groundwater conditions, and selected laboratory test data. The laboratory logs were prepared for each boring giving the appropriate sample data and the textural description and classification.

Representative samples recovered in the borings were selected for testing in the laboratory to evaluate their physical properties and engineering characteristics. Laboratory analyses included visual soil classification (ASTM D2488/D2487) and particle-size analysis (ASTM D422). Natural moisture content and estimated unconfined compressive strength (Qp) were also determined for cohesive soils. The results of all

laboratory tests are summarized in Section 4.2 below, in the appendices of this report and are referenced on the boring log as appropriate.

4.0 SITE AND SUBSURFACE CONDITIONS

4.1 Site Conditions

The area that will support the new building addition currently serves as a paved parking/drive area, as is the northside stairway addition. The northeastern parcel proposed for parking is currently a paved, in-service parking lot, while the proposed northwestern parking lot is currently an undeveloped, grass covered lot.

Historical aerial imagery indicates that the current and proposed parking lots along the 1st Avenue side of the project area have supported previous structures, as would be expected in this mature part of the city. The northwestern parking lot appears to have had several structures on it, as well as numerous mature trees, as recently as 1-year ago. The northeastern parking lot appears to have been a paved parking lot since somewhere around 2006 or after. Prior to that, the parcel appears to have also supported structures and a grass lot. The prior structures all appear to be single-family dwellings and respective ancillary structures.

4.2 Subsurface Conditions

Our interpretation of the subsurface conditions is based upon widely spaced soil borings drilled at the approximate locations shown on the Boring Location Map in Appendix A. The following discussion is general; for more specific information, please refer to the boring logs presented in Appendix A. It should be noted that the dashed stratification lines shown on the soil boring logs indicate approximate transitions between soil types. In situ stratification changes could occur gradually or at different depths. All depths discussed below refer to depths below the existing ground surface.

The majority of the project area is covered with asphalt pavement that serves as alleyways, parking and driveways serving the surrounding civic facilities. Our borings B-1 through B-3 were performed in these paved areas which indicate asphalt depths ranging from about 5 to 6-inches. Boring B-4 was performed in an existing traffic island in the center of the existing employee parking lot. This raised traffic island was filled with coarse gravel to a depth of about 6-inches. Boring B-5 was positioned in the undeveloped proposed northeast parking lot and possessed topsoil to a depth of about 4-inches.

The surfacial materials are typically underlain by profile consisting of FILL or POSSIBLE FILL, which is comprised of very loose to loose SILTY SAND and CLAYEY SAND with occasional trace CINDERS, BRICK FRAGMENTS and gravel. The original boring location for Boring B-1 also indicates the presence of concrete below the asphalt. The depth of concrete was not determined due to auger refusal. Only Boring B-4 did not indicate the FILL profile. Where present, the FILL profile was noted as extending to depths of about 3 to 11-feet below the existing ground surface. Standard Penetration Test N-values (blow counts) in this material varied from weight of hammer (woh) advancement to 9 blows per foot with an average of about 4-bpf.

Below the FILL profile, or beneath the surficial layer in Boring B-4, the project borings typically encountered very loose to loose SILTY SAND, SAND with minor silt or gravel fractions. Boring B-1 also indicated the presence of a discontinuous deposit of stiff SANDY SILTY CLAY. Standard Penetration Test N-values (blow counts) in the sands varied from 2 to 9 blows per foot with an average of about 5-bpf. The blow count in the isolated clay layer in Boring B-1 was 6-bpf, with corresponding moisture content of 16-percent and an estimated unconfined compressive strength of 1.75 tons per square foot (tsf) using a hand penetrometer. All of the project borings terminated within the granular soil deposition at depths of 15 and 25-feet below the surface.

4.3 Groundwater Conditions

During the drilling process, sampling tools were routinely observed for the existence of free-water which would indicate groundwater presence. Additionally, the open boreholes were also observed for water above the collapse depth after the removal of the augers upon the completion of each hole. Based on these methods, groundwater was not encountered in any of the project test borings drilled at the site.

The term groundwater pertains to any water that percolates through the soil found on site. This includes any overland flow that permeates through a given depth of soil, perched water, and water that occurs below the “water table”, a zone that remains saturated and water-bearing year round.

It should be recognized that fluctuations in the groundwater level should be expected over time due to variations in rainfall and other environmental or physical factors. The true static groundwater level can only be determined through observations made in cased holes over a long period of time, the installation of which was beyond the scope of this investigation.

5.0 DESIGN RECOMMENDATIONS

5.1 Basis

Our recommendations are based on data presented in this report, which include soil borings, laboratory testing and our experience with similar projects. Subsurface variations that may not be indicated by a dispersive exploratory boring program can exist on any site. If such variations or unexpected conditions are encountered during construction, or if the project information is incorrect or changed, we should be informed immediately since the validity of our recommendations may be affected.

5.2 Foundations

Conventional spread footings are typically considered the most economical and efficient means of structural support. However, the existence of loose and very loose sands as well as apparent FILL material and the necessity to raise the grade with additional surcharge soils pose some concerns that will need to be addressed for the use of shallow spread footings. Failure to properly prepare the bearing soils will result in excessive settlement and poor foundation performance.

Based on the findings of the project borings and analysis using the proposed loads, the proposed structure could be supported on conventional spread footings bearing on well prepared bearing soils. The preparation of the bearing subgrade to receive the new footings would involve the **undercutting of all footings to a minimum depth of 3-feet below the bearing grade**. The excavations would also be overexcavated laterally 1-foot for each 2-feet of undercutting in accordance with Illustration A at the end of this report. The compaction of the exposed undercut grade as well as the replacement of controlled backfill are discussed in Section 6 of this report. For proper foundation performance, all foundation subgrade preparation must be witnessed by a *Patriot* representative and must be completed in strict accordance with the narrative describing the necessary undercutting and backfilling described in Section 6 of this report.

Upon satisfactory completion of the undercutting and backfilling to prepare the bearing subgrade, footings should be proportioned using a net allowable soil bearing pressure not exceeding 1,500 pounds per square foot (psf) for column footings or strip (wall) footings. For proper performance at the recommended bearing pressure, foundations must be constructed in compliance with the recommendations for footing excavation

inspection that are discussed in the Construction Considerations Section 6.0 of this report.

In using the above net allowable soil bearing pressures, the weight of the foundation and backfill over the foundation need not be considered. Hence, only loads applied at or above the minimum finished grade adjacent to the footing need to be used for dimensioning the foundations. Each new foundation should be positioned so it does not induce significant pressure on adjacent foundations; otherwise the stress overlap must be considered in the design.

All exterior foundations and foundations in unheated areas should be located at a depth of at least 30-inches below final exterior grade for frost protection. However, interior foundations or those protected from frost influence can bear at depths of approximately 12-inches below the finished floor. We recommend that strip footings be at least 18-inches wide and column footings be at least 24-inches wide for bearing capacity considerations.

We estimate that the total foundation settlement should not exceed approximately 1-inch and that differential settlement should not exceed about ¾-inch. Careful field control during construction is necessary to minimize the actual settlement that will occur.

Positive drainage of surface water, including downspout discharge, should be maintained away from structure foundations to avoid wetting and weakening of the foundation soils both during construction and after construction is complete.

5.3 Slabs-on-Grade

The slab associated with the building addition will rest upon approximately 6-feet of compacted, grade raise fill. It is assumed that the fill will be granular fill such as “B” borrow sand or pit run sand & gravel and will be placed in controlled lifts, applying sufficient compactive effort and verification by testing to attain a minimum of 95% of a Standard Proctor maximum dry density. With these assumptions, a modulus of subgrade reaction, “K_{30}” value of 300-pounds per cubic inch (pci), is recommended for the design of soil-supported floor slabs. It should be noted that the “K_{30} " modulus is based on a 30-inch diameter plate load. Adjustments to design may be necessary to accommodate larger are loads.

We recommend that all floor slabs be designed as "floating", that is, fully ground

supported and not structurally connected to walls or foundations. This is to minimize the possibility of cracking and displacement of the floor slab because of differential movements between the slab and the foundation. Although the movements are estimated to be within the tolerable limits for the structural safety, such movements could be detrimental to the slabs if they were rigidly connected to the foundations. If the slabs are to be rigidly connected to walls or other portions of the structures, they should be designed as structural elements that transfer loads to the walls, piers and foundations.

It is assumed that the grade-raise fill for the project will consist of clean, granular soils. Those soils would suffice for under-slab drainage. If clean granular soils are not used, the final lift should involve a minimum 6-inch thick, clean granular base course that includes not more than 10-percent fines. The granular base course is intended to help distribute loads and equalize moisture conditions beneath the slab. All slabs should be liberally jointed and designed with the appropriate reinforcement for the anticipated loading conditions.

5.4 Lateral Earth Pressures

The magnitude of the lateral earth pressure is dependent on the method of backfill placement, the type of backfill soil, drainage provisions and whether or not the wall is permitted to yield during and/or after placement of the backfill. When a wall is held rigidly against horizontal movement, the lateral pressure against the wall is greater than the "active" earth pressure that is typically used in the design of free-standing retaining walls. Therefore, rigid walls should be designed for higher "at-rest" pressures (using an at-rest lateral earth pressure coefficient, K_o), while yielding walls can be designed for active pressures (using an active lateral earth pressure coefficient, K_a).

The foundation walls proposed for the project site are expected to be rigid walls which extend to the raised grade elevation, approximately 6.5-feet above the current surface. Provided **a clean open-graded granular material such as INDOT “B” borrow sand is used for backfill**, a total soil unit weight (γ_t) of 125-pcf and an at-rest lateral earth pressure coefficient (K_o) of 0.45 can be used for calculating the lateral earth pressures. This would correspond to an equivalent fluid pressure of 57-pounds per square foot (psf) per foot of wall height. This equivalent fluid pressure would increase linearly from zero (0) psf at the ground surface, to its maximum at the base of the wall. If the backfill against walls will consist of “dirtier” granular soils with fines of more than 10% (borrow such as “red sand” or “bank run”), the values should be adjusted to 135-pcf for total soil unit weight (γ_t), and 0.48 for the at-rest lateral earth pressure coefficient (K_o).

Any structures such as free-standing walls proposed for the project should be designed utilizing a total soil unit weight (γ_t) of 125-pcf and an active lateral earth pressure coefficient (**K_a**) of 0.30 for calculating the lateral earth pressures. This would correspond to an equivalent fluid pressure of 38-pounds per square foot (psf) per foot of wall height. This equivalent fluid pressure would increase linearly from zero (0) pounds per square foot (psf) at the ground surface, to a maximum at the base of the wall. This assumes backfill comprised of **open-graded granular material such as INDOT #8 or #23 aggregate.** Soils containing more than 10-percent fines should not be used for backfill directly behind free-standing walls.

The shear resistance against base sliding can be computed by multiplying the minimum normal force on the base of the footing times the applicable coefficient of friction. Lateral earth pressures can be computed as discussed above. A minimum factor of safety of 1.5 is recommended for sliding stability.

Table 5.4: Summary of Lateral Earth Design Pressures:

Backfill Material	Soil Unit Weight (γ_t) (pcf)	At-Rest Coefficient (K_o)	Active Coefficient (K_a)	Passive Coefficient (K_p)	Coefficient of Friction
Clean, granular fill (<10% fines)	125	0.45	0.30	3.2	0.39
Silty or Clayey Granular fill (>10% fines)	135	0.48	0.32	3.1	0.36

It has been assumed that the static weight per axle of equipment utilized for the compaction of the backfill materials adjacent to the below-grade wall will not exceed 2 tons per axle for non-vibratory equipment and 1 ton per axle for vibratory equipment. All heavy equipment, including compaction equipment heavier than recommended above, should not be allowed closer to the wall (horizontal distance) than the vertical distance from the backfill surface to the bottom of the wall.

5.5 Seismic Considerations

For structural design purposes, we recommend using a ***Site Classification of "D"*** as defined by the 2014 Indiana Building Code (modified 2012 International Building Code (IBC)). Furthermore, along with using a Site Classification of "D", we recommend the use of the maximum considered spectral response acceleration and design spectral response acceleration coefficients provided in Table No. 5.5 below.

TABLE NO. 5.5: SEISMIC DESIGN SPECTRAL RESPONSE ACCELARATION COEFFICIENTS

PERIOD (SECOND)	MAXIMUM CONSIDERED SPECTRAL RESPONSE ACCELERATION COEFFICIENT	SOIL FACTOR	DESIGN SPECTRAL RESPONSE ACCELERATION COEFFICIENT
0.2	S_S = 0.259 g	1.593	S_{DS} = 0.275 g
1.0	S_1 = 0.114 g	2.344	S_{D1} = 0.178 g

These values were obtained from on-line seismic hazard calculation software seismicmaps.org and atccouncil.org, utilizing latitude 39.4777 North and longitude 87.3942 West as the designation for identifying the location of the parcel, applying IBC 2015 references. Other earthquake resistant design parameters should be applied consistent with the minimum requirements of the governing Indiana Building Code.

5.6 Pavements

The near surface soils encountered below the topsoil during our investigation are generally suitable for pavement support. If construction is performed during a wet or cold period, the contractor will need to exercise care during the grading and fill placement activities in order to achieve the necessary subgrade soil support for the pavement system. (See Section 6.0 for Construction Considerations.) The base soil for the pavement section will need to be firm and dry. The subgrade should be sloped properly in order to provide good base drainage. To minimize the effects of groundwater or surface water conditions, the base section for the roadway should be sufficiently high above adjacent ditches and properly graded to provide pavement surface and pavement base drainage.

Based upon the near surface soil encountered in the borings and assuming subgrade preparation in strict accordance with the recommendations set forth in Section 6.0 of this report, we recommend using a CBR value of **9** for pavement design purposes. It should be recognized though, that the recommended CBR value is based on empirical relationships only, and laboratory CBR tests may determine a higher allowable CBR value. Minimum pavement sections should include at least 6-inches of crushed stone aggregate such as INDOT #53 gradation supporting at least 3-inches of asphalt pavement or 4-inches of reinforced concrete pavement regardless of CBR-generated sections. Pavements such as dumpster pads that will support stationary items for extended periods must always be comprised of reinforced concrete, not asphalt paving.

Our recommendations are based on the assumption that the paved areas will be constructed on proofrolled natural soil, or on structural fill overlying the same. Serviceable pavements can be achieved by different combinations of materials and thicknesses, varied to provide roughly equivalent strengths.

5.7 Stormwater Management

It is our understanding that surface runoff from the pavements will be managed through the installation of infiltration structures such as drywells or infiltration trenches. These systems typically serve to collect surface water, provide temporary storage during storm events, then release the water into underlying strata.

Based on the findings of the available borings, laboratory testing of select samples and our experience at nearby sites, we recommend that the drainage system should interface with the granular soils with minor silt and clay content noted in the borings at depths below approximately 8-feet beneath the current surface elevation. A *Patriot* representative should be allowed to observe the excavations to verify that the appropriate soil profile has been reached. If shallower stormwater structure installations are desired, appreciably slower design infiltration rates would apply.

Assuming installation to a minimum depth of 8-feet below the current surface and soils consistent with the findings of our borings, we recommend that the drainage system should be designed using the following soil drainage parameters:

Kperm = 10^{-2} cm/sec, or a permeability/infiltration rate of 5-inches per hour

Although deepening the structures could connect with cleaner sands, it is unlikely that

any infiltration efficiency would be realized since groundwater conditions, especially during storm events, would likely impede dissipation from stormwater structures.

6.0 CONSTRUCTION CONSIDERATIONS

6.1 Site Preparation

All areas that will support foundations, floors, pavements or newly placed structural fill must be properly prepared. All loose surficial soil or "topsoil", asphalt pavement and other unsuitable materials must be removed. Unsuitable materials include: frozen soil, relatively soft material, relatively wet soils, deleterious material, or soils that exhibit a high organic content.

Four (4) to six (6) inches of loose surfacial topsoil or pavement were encountered in the borings. The surface materials were measured at discrete locations as shown on the Boring Plan (Appendix A). The material thickness measured at the boring locations may or may not be representative of the overall average thickness at the site. Therefore, it is possible that the actual stripping depth will significantly vary from this data. The data presented should be viewed only as a guide to the approximate stripping depth that will be required to remove organic or asphalt material at the surface. Additional field exploration by *Patriot* would be required to provide an accurate estimate of the stripping depth. This limited data indicates that a minimum stripping depth will be required to remove the materials at the surface, followed by the potential for additional stripping and/or scarification and recompaction as may be required to achieve suitable subgrade support. It is also important that the site is not overly stripped based merely on visual observations, particularly by dark coloration. The extent of stripping should be determined by *Patriot* during the site preparation activities through sampling and testing to determine organic content or other deleterious matter.

Prior to construction of floor slabs, pavements or the placement of new structural fill, the exposed subgrade must be evaluated by a *Patriot* representative which will include proofrolling of the subgrade. Proofrolling should consist of repeated passes of a loaded, pneumatic-tired vehicle such as a tandem-axle dump-truck or scraper. The proofrolling operations should be observed by a *Patriot* representative, and the proofrolling vehicle should be loaded as directed by *Patriot*. Any area found to rut, pump, or deflect excessively should be compacted in-place or, if necessary, undercut and replaced with structural fill, compacted as specified below.

Care must be exercised during grading and fill placement operations. The combination of heavy construction equipment traffic and excess surface moisture can cause pumping and deterioration of the near surface soils. The severity of this potential problem depends to a great extent on the weather conditions prevailing during construction. The contractor must exercise discretion when selecting equipment sizes and also make a concerted effort to control construction traffic and surface water while the subgrade soils are exposed. We recommend that heavy construction equipment (i.e., dump trucks, scrapers, etc.) be rerouted away from the building and pavement areas. If such problems do arise, the operations in the affected area should be halted and the *Patriot* representative contacted to evaluate the condition.

6.2 Foundation Excavations

A *Patriot* representative should be present during the excavation of all foundations for the project. This will allow our representative to observe the excavated soils and view the bearing conditions on an ongoing basis and make corrections as-needed during digging. This will ultimately provide more efficient and timely effort in completion of the undercutting and over-excavation process. Inspections will include hand auger probing, visual inspection, comparison to the findings of the project soil borings and possible testing with dynamic cone penetrometer or other engineering equipment.

As discussed in Section 5.2 earlier in this report, it will be necessary to undercut, over-excavate and backfill for proper support of the new footings. The effort is necessary to reduce overall total and differential settlement and improve and equalize the bearing capacity of the soils that will support the new footings.

All footings must be undercut to a minimum depth of 3-feet below the bearing elevation. In addition to excavation depth, the digging must extend laterally a minimum distance beyond the edge of the footing to accommodate the load stress from the footing. The over-excavation must extend at a 1H:2V slope outward from the edge of the footing. For example, if the depth to the bottom of excavation is 3-feet below the bottom of the foundation, the excavation would need to extend laterally beyond the edge of the footing at least 1.5-feet, as shown in Illustration A found at the conclusion of this report.

Upon reaching the minimum depth, the footings should be compacted in-place using repeated passes of vibratory roller or large vibratory plate compactor, insuring complete coverage of the exposed bearing surface. Compactive effort should continue until the in-

place soils have attained 100% of the Standard Proctor maximum dry density, or until compactive efforts are unable to attain additional density. Proper moisture content of the subgrade soils will be necessary to allow for the efficient densification of the in-place soils. The process must be tested, witnessed and verified by a *Patriot* representative for compliance with the intent of this report.

Once the bottom of the undercut excavation is suitably prepared, the excavation can be backfilled in controlled lifts and compacted to the bottom of footing elevation. Backfilling should be performed in accordance with Section 6.3 below.

We recommend that all footings should be poured the same day the excavations are prepared to protect the bearing surface from desiccation or wetting, weathering or other disturbance that could compromise the soils supporting the new foundation. If it is not possible to complete the forming, reinforcement installation and placement of concrete in the same day as subgrade preparation, the foundation excavation must be protected from all disturbances or other forms of deterioration. Drying or wetting and re-compaction may be necessary prior to concrete placement if excavations are allowed to remain exposed. Construction traffic on the exposed surface of the bearing soil will potentially cause some disturbance of the subgrade and consequently loss of bearing capacity. However, the degree of disturbance can be minimized by proper protection of the exposed surface and/or limiting construction activities on the bearing surface.

Excavation slopes should be maintained within OSHA requirements. Based on the findings of the soil borings, we believe that the soil conditions at this site should be classified as Type C in accordance with OSHA 29 CFR parts 1926.650 through 1926.652. It should be recognized, however, that this information is provided as <u>preliminary</u> as determined by discrete borings of in situ materials. The contractor's "competent person", as defined by law, must classify the actual soils and conditions in the field relating to excavation protection, health and safety. We recommend that any surcharge fill or heavy equipment be kept at least 5-feet away from the edge of any excavation.

Also, excavations that occur near existing in-use foundations should be carefully performed making a conscious effort not to undermine the support of the in-use foundations. If it is necessary to excavate soil adjacent to and below the bearing elevation of any in-use foundations**,** *Patriot* should be contacted to make further recommendations regarding these excavations. Please refer to Illustration B at the end of this report for further details.

6.3 Structural Fill and Fill Placement Control

Structural fill, defined as any fill which will support structural loads, should be clean and free of organic material, debris, deleterious materials and frozen soils. Samples of the proposed fill materials should be tested prior to initiating the earthwork and backfilling operations to determine the classification, the natural and optimum moisture contents and maximum dry density and overall suitability as a structural fill.

In general, the on-site soils appear suitable for use as structural fill for the project, although some materials may need to be disposed of due to urban fill content (i.e. cinders). Some of the soils also contain appreciable silt and clay content which may cause them to be difficult to use during wet seasons.

It should be noted that soils encountered during construction activities may be subject to special considerations or handling due to potential environmental impacts. Soils containing debris, foreign matter or other contaminants designated as special or hazardous as designated by state, local or federal regulatory agencies may require individualized handling and/or disposal. Designation and testing of materials for special treatment or direction for handling are outside the scope of this investigation.

All structural fill beneath floor slabs, adjacent to foundations and over foundations, should be compacted to at least 95-percent of its maximum Standard Proctor dry density (ASTM D-698). This minimum compaction requirement should be increased to 100-percent of the maximum Standard Proctor dry density for fill supporting footings, provided these are designed as outlined in Recommendations, Section 5.0.

In cut or on-grade areas where pavement sections are planned, the upper 10-in. of subgrade must be scarified and compacted to a dry density of at least 100-percent of the Standard Proctor maximum dry density (ASTM D-698). Any grade-raise fill placed within 1-ft of the base of the pavement section should also be compacted to at least 100 percent of the Standard Proctor maximum dry density. This can be reduced to 95-percent for engineered fill placed more than 1-ft below the base of the pavement section.

To achieve the recommended compaction of the structural fill, we suggest that the fill be placed and compacted in layers not exceeding eight (8) inches in loose thickness. All fill placement should be monitored by a *Patriot* representative.

Fill placement control and field density (compaction) testing should be conducted by a *Patriot* representative during construction. Fill placement inspection should involve full-time observation of newly placed materials during fill and/or backfill operations to control lift thickness, material quality and compaction effort. Field density testing should be performed in accordance with ASTM D6938, nuclear gauge method, or ASTM 1556, sand-cone method. The frequency of testing should produce a minimum of one (1) density test result per 2,500-square feet, per material-lift, and as necessary to adequately represent the area and compaction effort.

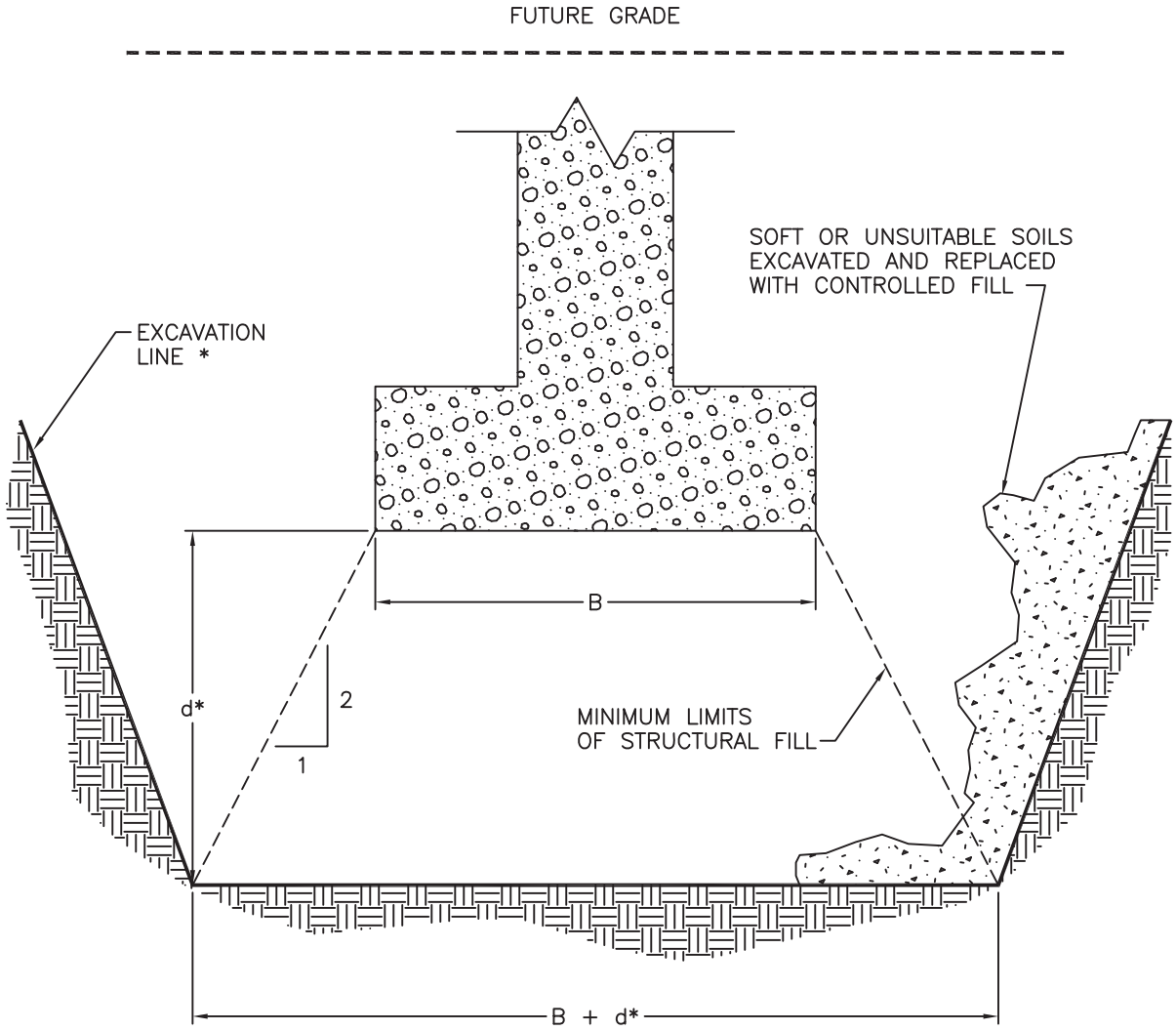
Compaction can be attained through various means of compaction equipment and techniques. In general, sheepsfoot rollers perform more efficiently in cohesive soils, while vibratory smooth drums and plates perform better with granular soils. “Flooding” or “jetting” with water as a means of compaction is generally considered unacceptable.

6.4 Groundwater

Groundwater was not encountered during drilling in any of the project borings, Likewise, the borings were dry at the cave in depths shown on the boring logs. The available site information as well as our experience in the vicinity of this site indicate that groundwater is below the anticipated excavation depth associated with foundations or drywells. However, localized and sporadic groundwater infiltration may occur into the excavations on this site, depending on seasonal conditions. Groundwater inflow into shallow excavations above the groundwater table is expected to be adequately controlled by conventional methods such as gravity drainage and/or pumping from sumps. More significant inflow can be expected in deeper excavations below the groundwater table requiring more aggressive dewatering techniques, such as well or wellpoint systems. For groundwater to have minimal effects on the construction, foundation excavations should be constructed and poured in the same day, if possible.

7.0 ILLUSTRATIONS

See Illustrations A and B on the following pages. These illustrations are presented to further visually clarify several of the construction considerations presented in Section 6.2.



*d IS DEPTH TO SUITABLE SOILS

* IN COMPLIANCE WITH OSHA STANDARDS

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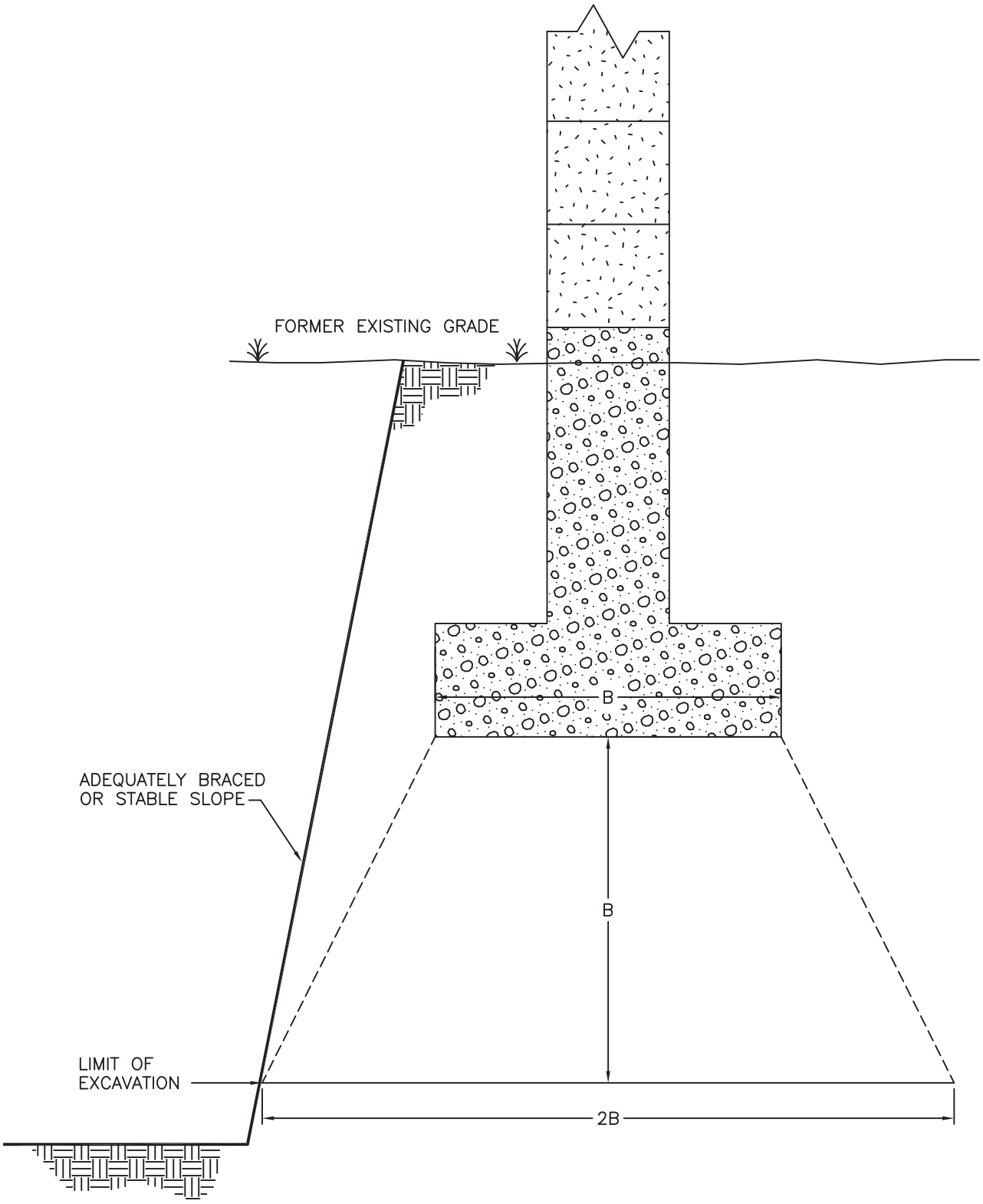
Excavation for Footings
In an Area of Fill
ILLUSTRATION A

PROJECT NO. PAT–UC

FIGURE



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Excavation Near Existing
In Use Foundations
ILLUSTRATION B

PROJECT NO. PAT-UC1

FIGURE 1

APPENDIX A

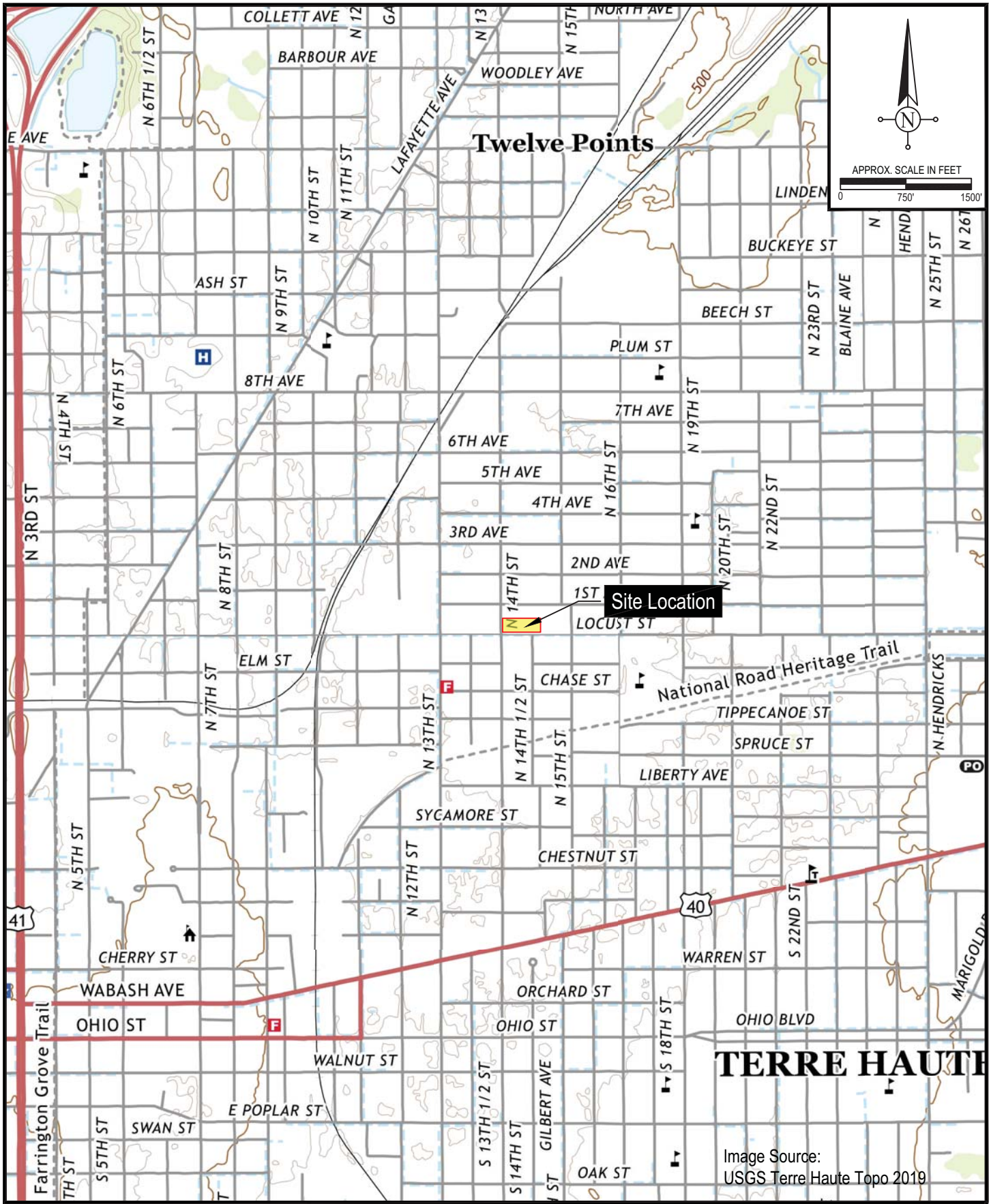
Site Vicinity Map

Boring Log Key

Unified Soil Classification

Boring Location Map

Boring Logs



Patriot Engineering & Environmental, Inc.

Project: Wabash Valley Health Center 1436 Locust Street Terre Haute, Indiana	
	Drawn By: J. DuMond
Project Number:19-0837-02	Approved: T. Govert
Date: June 19, 2019	DWG: 19-0837-02_geo

Figure 1

Site Vicinity Map

PATRIOT ENGINEERING and Environmental, Inc.
Engineering Value for Project Success

BORING LOG KEY

UNIFIED SOIL CLASSIFICATION SYSTEM
FIELD CLASSIFICATION SYSTEM
FOR SOIL EXPLORATION

NON COHESIVE SOILS
(Silt, Sand, Gravel and Combinations)

Density

Very Loose	-4 blows/ft. or less
Loose	-5 to 10 blows/ft.
Medium Dense	-11 to 30 blows/ft.
Dense	-31 to 50 blows/ft.
Very Dense	-51 blows/ft. or more

Grain Size Terminology

Soil Fraction	Particle Size	US Standard Sieve Size
Boulders	Larger than 12”	Larger than 12”
Cobbles	3” to12”	3” to 12”
Gravel: Coarse	¾” to 3”	¾” to 3”
Small	4.76mm to ¾”	#4 to ¾”
Sand: Coarse	2.00mm to 4.76mm	#10 to #4
Medium	0.42mm to 2.00mm	#40 to #10
Fine	0.074mm to 0.42mm	#200 to #40
Silt	0.005mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005mm	Smaller than #200

RELATIVE PROPORTIONS FOR SOILS

Descriptive Term	Percent
Trace	1 - 10
Little	11 - 20
Some	21 - 35
And	36 - 50

COHESIVE SOILS
(Clay, Silt and Combinations)

Consistency	Unconfined Compressive Strength (tons/sq. ft.)	Field Identification (Approx.) SPT Blows/ft.
Very Soft	Less than 0.25	0 - 2
Soft	0.25 – < 0.5	3 - 4
Medium Stiff	0.5 - < 1.0	5 - 8
Stiff	1.0 - < 2.0	9 -15
Very Stiff	2.0 - < 4.0	16 - 30
Hard	Over 4.0	> 30

Classification on logs are made by visual inspection.

Standard Penetration Test - Driving a 2.0” O.D., $1^{3/8}$” I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary for **Patriot** to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drill log (Example - 6/8/9). The standard penetration test results can be obtained by adding the last two figures (i.e. 8 + 9 = 17 blows/ft.).

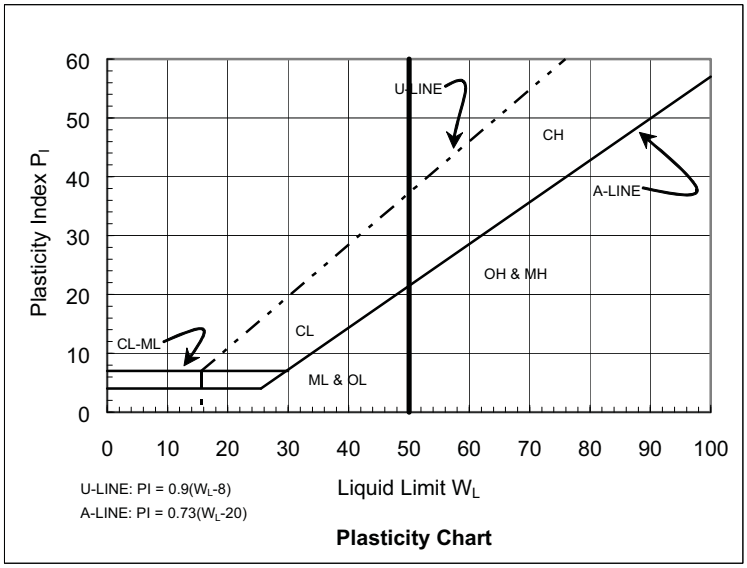
Strata Changes - In the column “Soil Descriptions” on the drill log the horizontal lines represent strata changes. A solid line (————) represents an actually observed change, a dashed line (- - - - - -) represents an estimated change.

Groundwater observations were made at the times indicated. Porosity of soil strata, weather conditions, site topography, etc., may cause changes in the water levels indicated on the logs.

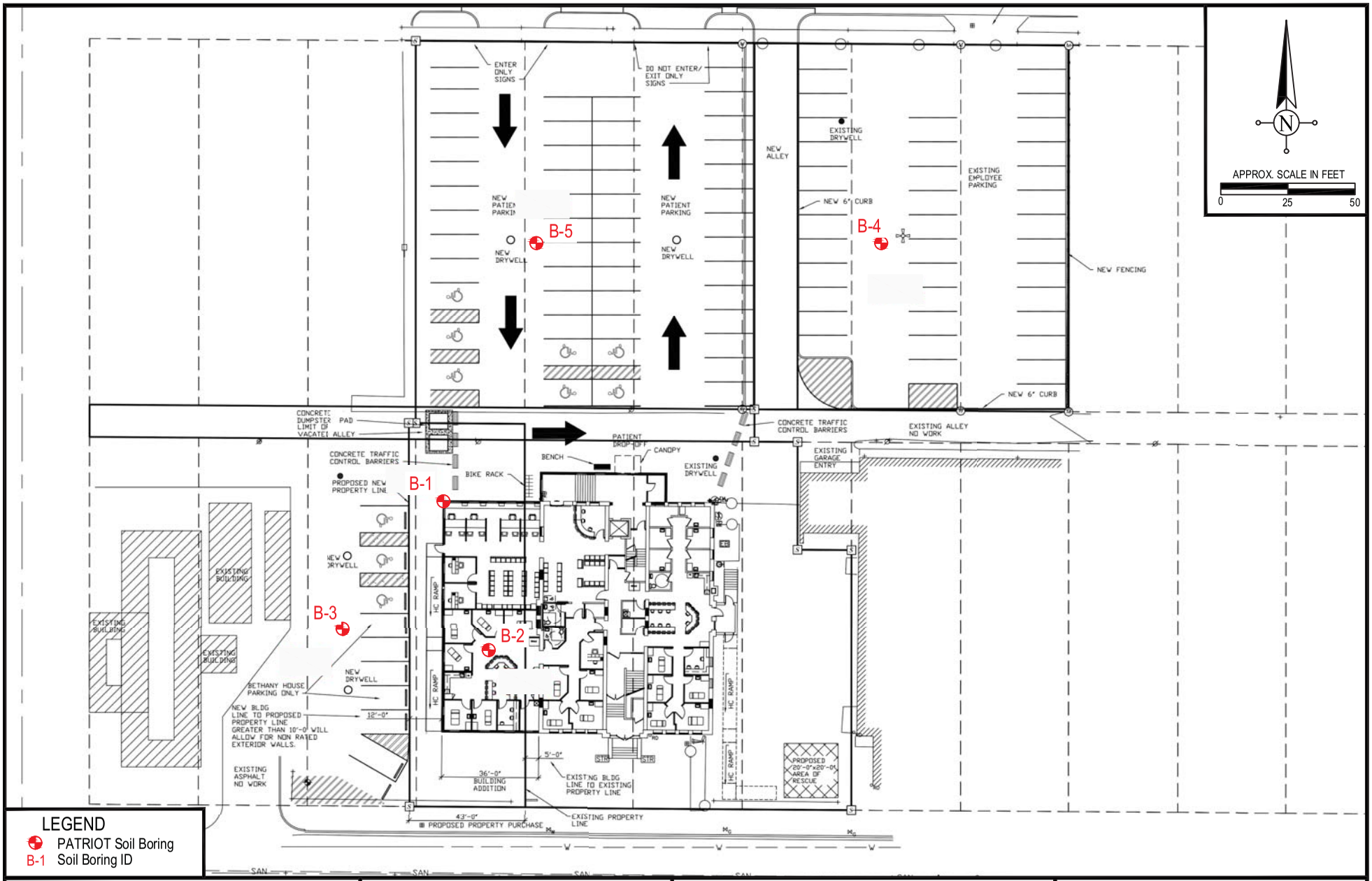
Groundwater symbols: ▼-observed groundwater elevation, encountered during drilling; ∇-observed groundwater elevation upon completion of boring.

Unified Soil Classification

Major Divisions			Group Symbol	Typical Names	Classification Criteria for Coarse-Grained Soils		
Coarse-grained soils (more than half of material is larger than No. 200)	Gravels (more than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	$C_U \geq 4$ $1 \leq C_C \leq 3$	$C_U = \frac{D_{60}}{D_{10}}$	$C_C = \frac{D^2_{30}}{D_{10} D_{60}}$
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW ($C_U < 4$ or $1 > C_C > 3$)		
		Gravels with fines (appreciable amount of fines)	GM $\frac{d}{u}$	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below A line or $P_I < 4$	Above A line with $4 < P_I < 7$ are borderline cases requiring use of dual symbols	
			GC	Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above A line or $P_I > 7$		
	Sands (more than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines	$C_U \geq 6$ $1 \leq C_C \leq 3$	$C_U = \frac{D_{60}}{D_{10}}$	$C_C = \frac{(D_{30})^2}{D_{10} D_{60}}$
			SP	Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW ($C_U < 6$ or $1 > C_c > 3$)		
		Sands with fines (appreciable amount of fines)	SM $\frac{d}{u}$	Silty sands, sand-silt mixtures	Atterberg limits below A line or $P_I < 4$	Limits plotting in hatched zone with $4 \leq P_I \leq 7$ are borderline cases requiring use of dual symbols	
			SC	Clayey sands, sand-clay mixtures	Atterberg limits above A line with $P_I > 7$		
Fine-grained soils (more than half of material is smaller than No. 200)	Silt and clays (liquid limit <50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	1. Determine percentages of sand and gravel from grain size curve. 2. Depending on percentages of fines (fraction smaller than 200 sieve size), coarse-grained soils are classified as follows: Less than 5% - GW, GP, SW, SP More than 12% - GM, GC, SM, SC 5-12% - Borderline cases requiring dual symbols		
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays (liquid limit >50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH	Inorganic clays or high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity, organic silts			
	Highly organic soils		PT	Peat and other highly organic soils			



Plasticity Chart



LEGEND
PATRIOT Soil Boring
B-1 Soil Boring ID

Patriot Engineering & Environmental, Inc.

NOTES:
1. Boring locations were staked by PATRIOT. All locations are shown as approximate.
2. All locations were determined in the field with references to existing landmarks.
3. Source: Michael Waldbieser Engr. Site Plan
4. Scale as shown.

Project: Wabash Valley Health Center
1436 Locust Street
Terre Haute, Indiana

	Drawn By: J. DuMond
Project Number: 19-0837-02	Approved: T. Govert
Date: June 19, 2019	DWG: 19-0837-02_geo

Figure 2

Soil Boring Location Map

SECTION 02205-26

PATRIOT ENGINEERING and Environmental Inc.

Indianapolis, Terre Haute, Evansville, Fort Wayne, Lafayette, Bloomington Louisville, KY Dayton, Cincinnati, OH Nashville, TN

LOG OF BORING B-1

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, IN

Client Name	: Wabash Valley Health Clinic	Driller	: Raymond Z.
Project Number	: 19-0837-02G	Sampling	: Splitspoon
Logged By	: T. Govert	Weather	: Cloudy, 75°F
Start Date	: 6/9/19	Latitude	: 39° 28.676' N
Drilling Method	: HSA	Longitude	: 87° 23.686' W

Water Levels
During Drilling: Dry
After Completion: Dry

Depth in Feet	USCS	Samples	Rec %	SPT Results	qp tsf	w %	DESCRIPTION	REMARKS
0							Asphalt paving (6")	
	SC	1	78	woh			Dark Brown, moist, very loose CLAYEY SAND with trace CINDERS (FILL)	Original location encountered concrete beneath the asphalt that could not be penetrated with the auger; boring was completed 8-feet West of original location.
	SM	2	67	woh/2/3			Dark Brown, moist, loose fine-grained SILTY SAND (FILL)	
5	SC	3	89	4/4/5			Grayish Brown, moist, loose to very loose CLAYEY SILTY SAND (possible FILL)	
		4	78	2/1/3				
10	CL	5	67	2/2/4	1.75	16	Brown, moist, stiff SANDY SILTY CLAY	
	SM	6	56	2/1/2			Brown, moist, very loose SILTY SAND with trace clay	Borehole collapsed at 21-feet after auger removal.
15								
20	SP-SM	7	89	1/3/2			Brown, moist, loose fine to medium-grained SAND with trace silt	
25							Boring terminated at 25-ft.	

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LOG OF BORING B-2

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, IN

Client Name	: Wabash Valley Health Clinic	Driller	: Raymond Z.
Project Number	: 19-0837-02G	Sampling	: Splitspoon
Logged By	: T. Govert	Weather	: Cloudy, 75°F
Start Date	: 6/9/19	Latitude	: 39° 28.667' N
Drilling Method	: HSA	Longitude	: 87° 23.686' W

Water Levels
During Drilling: Dry
After Completion: Dry

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
0				Asphalt paving (6")						
		SC		Dark Brown, moist, very loose CLAYEY SAND with trace BRICK FRAGMENTS, CINDERS (FILL)	1	44	woh			
		SM		Grayish Brown, moist, very loose fine-grained SILTY SAND (possible FILL)	2	89	woh/1/1			
5										
		SM		Brown, moist, loose to very loose SILTY SAND	3	89	2/3/3			
					4	56	2/1/1			
10										
		SW		Brown, moist, very loose to loose well-graded SAND with trace small gravel	5	67	2/2/2			
15										
					6	89	2/1/4			Borehole collapsed at 19-feet after auger removal.
20										
		SW		Grayish Brown, moist, loose well-graded SAND with some gravel	7	44	3/4/3			
25										

Boring terminated at 25-ft.

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PATRIOT ENGINEERING and Environmental Inc.
Indianapolis, Terre Haute, Evansville, Fort Wayne, Lafayette, Bloomington
Louisville, KY Dayton, Cincinnati, OH Nashville, TN

LOG OF BORING B-3

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, IN

Client Name	: Wabash Valley Health Clinic	Driller	: Raymond Z.
Project Number	: 19-0837-02G	Sampling	: Splitspoon
Logged By	: T. Govert	Weather	: Sunny, 72°F
Start Date	: 6/9/19	Latitude	: 39° 28.667' N
Drilling Method	: HSA	Longitude	: 87° 23.698' W

Water Levels
During Drilling: Dry
After Completion: Dry

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
0				Asphalt paving (5")						
		SC		Dark Brown, moist, very loose SILTY CLAYEY SAND with trace BRICK fragments (FILL)	1	78	2/1/2			
		SM		Brown, moist, very loose SILTY SAND with trace clay	2	56	2/1/1			
5		SM		Reddish Brown & Tan Mottled, moist, loose SILTY SAND	3	89	3/3/4			
		SP-SM		Reddish Brown, moist, very loose SAND with trace silt	4	89	2/2/2			
10		SP-SM		Brown, moist, very loose SAND with trace small gravel, silt & clay	5	67	2/1/3			Borehole collapsed at 13-feet after auger removal. Sample #5: Particle-size analysis performed
15										
20										
25				Boring terminated at 15-ft.						

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PATRIOT ENGINEERING and Environmental Inc.

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LOG OF BORING B-4

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, IN

Client Name	: Wabash Valley Health Clinic	Driller	: Raymond Z.
Project Number	: 19-0837-02G	Sampling	: Splitspoon
Logged By	: T. Govert	Weather	: Cloudy, 70°F
Start Date	: 6/9/19	Latitude	: 39° 28.693' N
Drilling Method	: HSA	Longitude	: 87° 23.659' W

Water Levels
During Drilling: Dry
After Completion: Dry

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
0		GP		Coarse Gravel (6")						
		SM		Reddish Brown, moist, very loose SILTY SAND	1	56	2/1/2			
		SP-SM		Brown, moist, loose SAND with trace silt	2	67	3/2/4			
5		SM		Reddish Brown, moist, loose SILTY SAND with trace gravel	3	44	2/4/4			
		SP-SM		Brown, moist, loose SAND with a little small gravel, trace silt	4	56	2/3/2			Borehole collapsed at 12-feet after auger removal.
10					5	67	2/4/5			Sample #5: Particle-size analysis performed
15				Boring terminated at 15-ft.						
20										
25										

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PATRIOT ENGINEERING and Environmental Inc.

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LOG OF BORING B-5

Wabash Valley Health Clinic Addition
1436 Locust Street
Terre Haute, IN

Client Name	: Wabash Valley Health Clinic	Driller	: Raymond Z.
Project Number	: 19-0837-02G	Sampling	: Splitspoon
Logged By	: T. Govert	Weather	: Cloudy, 70°F
Start Date	: 6/9/19	Latitude	: 39° 28.695' N
Drilling Method	: HSA	Longitude	: 87° 23.684' W

Water Levels
During Drilling: Dry
After Completion: Dry

Depth in Feet	Water Level	USCS	GRAPHIC	DESCRIPTION	Samples	Rec %	SPT Results	qp tsf	w %	REMARKS
0		GP		Topsoil (4")						
		SM		Dark Brown, moist, loose SILTY SAND with trace CINDERS & small gravel (FILL)	1	56	2/3/4			
		SM		Dark Brown, moist, very loose SILTY SAND with trace clay	2	67	2/1/2			Sample #2: Particle-size analysis performed
5		SP-SM		Brown, moist, loose fine-grainedSAND with trace silt	3	78	3/2/3			
				Reddish Brown, moist, very loose to loose SAND with trace small gravel, silt & clay	4	67	2/1/1			Sample #4: Particle-size analysis performed
10		SP-SM								
					5	56	2/2/3			Borehole collapsed at 14.5-feet after auger removal.
15				Boring terminated at 15-ft.						
20										
25										

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APPENDIX B

General Qualifications

and

Standard Clause for Unanticipated Subsurface Conditions

GENERAL QUALIFICATIONS

of Patriot Engineering's Geotechnical Engineering Investigation

This report has been prepared at the request of our client for his use on this project. Our professional services have been performed, findings obtained, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either expressed or implied.

The scope of our services did not include any environmental assessment or investigation for the presence or absence of wetlands, hazardous or toxic materials in the soil, groundwater, or surface water within or beyond the site studied. Any statements in this report or on the test borings logs regarding vegetation types, odors or staining of soils, or other unusual conditions observed are strictly for the information of our client and the owner.

This report may not contain sufficient information for purposes of other parties or other uses. This company is not responsible for the independent conclusions, opinions or recommendations made by others based on the field and laboratory data presented in this report. Should there be any significant differences in structural arrangement, loading or location of the structure, our analysis should be reviewed.

The recommendations provided herein were developed from the information obtained in the test borings, which depict subsurface conditions only at specific locations. The analysis, conclusions, and recommendations contained in our report are based on site conditions as they existed at the time of our exploration. Subsurface conditions at other locations may differ from those occurring at the specific drill sites. The nature and extent of variations between borings may not become evident until the time of construction. If, after performing on-site observations during construction and noting the characteristics of any variation, substantially different subsurface conditions from those encountered during our explorations are observed or appear to be present beneath excavations we must be advised promptly so that we can review these conditions and reconsider our recommendations where necessary.

If there is a substantial lapse of time between the submission of our report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, we urge that our report be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

We urge that Patriot be retained to review those portions of the plans and specifications that pertain to earthwork and foundations to determine whether they are consistent with our recommendations. In addition, we are available to observe construction, particularly the compaction of structural backfill and preparation of the foundations, and such other field observations as may be necessary.

In order to fairly consider changed or unexpected conditions that might arise during construction, we recommend the following verbiage (Standard Clause for Unanticipated Subsurface Conditions) be included in the project contract.

STANDARD CLAUSE FOR UNANTICIPATED SUBSURFACE CONDITIONS

"The owner has had a subsurface exploration performed by a soils consultant, the results of which are contained in the consultant's report. The consultant's report presents his conclusions on the subsurface conditions based on his interpretation of the data obtained in the exploration. The contractor acknowledges that he has reviewed the consultant's report and any addenda thereto, and that his bid for earthwork operations is based on the subsurface conditions as described in that report. It is recognized that a subsurface exploration may not disclose all conditions as they actually exist and further, conditions may change, particularly groundwater conditions, between the time of a subsurface exploration and the time of earthwork operations. In recognition of these facts, this clause is entered in the contract to provide a means of equitable additional compensation for the contractor if adverse unanticipated conditions are encountered and to provide a means of rebate to the owner if the conditions are more favorable than anticipated.

At any time during construction operations that the contractor encounters conditions that are different than those anticipated by the soils consultant's report, he shall immediately (within 24 hours) bring this fact to the owner's attention. If the owner's representative on the construction site observes subsurface conditions which are different than those anticipated by the consultant's report, he shall immediately (within 24 hours) bring this fact to the contractor's attention. Once a fact of unanticipated conditions has been brought to the attention of either the owner or the contractor, and the consultant has concurred, immediate negotiations will be undertaken between the owner and the contractor to arrive at a change in contract price for additional work or reduction in work because of the unanticipated conditions. The contract agrees that the following unit prices would apply for additional or reduced work under the contract. For changed conditions for which unit prices are not provided, the additional work shall be paid for on a time and materials basis."

Another example of a changed conditions clause can be found in paper No. 4035 by Robert F. Borg, published in ASCE Construction Division Journal, No. CO2, September 1964, page 37.

SECTION 03100 - CONCRETE FORM WORK

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Include all form work of any and all types and kinds, both temporary and permanent, as noted or indicated on drawings, specified herein or required to contain concrete during it's curing period even though such forms may or may not be specifically called out or noted.

Forms for all reinforced concrete work shall be wood or metal.

1.2 DESIGN OF FORMS

Design and construction of safe and adequate forms, shores, diagonal bracing and foundation form work shall be the responsibility of the Contractor. In addition, the design of all form work shall be in accordance with recommendations of "ACI" Standard Recommended Practice for Concrete Form Work ACI-347. These recommendations shall serve as a minimum standard of design for all form work.

Forms shall be constructed to the shape, lines, grades and dimensions indicated or noted on drawings and shall be so maintained during the placing operation that when forms are removed the concrete work will be perfectly cast as intended by the Drawings with a maximum tolerance in either the vertical or Horizontal place of 1/4" in 10 feet.

Forms shall be so designed and constructed that they may be removed without injury to the concrete.

PART 2: PRODUCTS

2.1 MATERIAL

For concrete exposed to view in the finished structure, forms shall be 5/8" or 3/4" 5-ply Douglas fir structural plywood of concrete form grade meeting the Bureau of Standards Commercial Standard CS-45 if the forms are unlined. 1/4" Douglas fir plywood of concrete form grade and 3/16" Masonite Presdwood shall be used for lined forms. Presdwood shall be thoroughly wet with water on the screen side at least 12 hours before use.

For exposed concrete form material may be selected at the Contractor's option provided it meets the requirements set out under "Form Construction".

2.2 FORM COATING

For exposed concrete shall be A.JC. Horn Company "Form Film", "Chem-Masters Corporation, Creteban 30", Toch Brothers, Inc., "Form Coating", Sonneborn Building Products "Formsaver" or "as approved equal".

2.3 FORM TIES, INSERTS, ETC

Metal form ties shall be used for all wall forms and shall be Richmond Screw Anchor Co., Inc., "Snap-Tys" Type SBR or of a type approved by the Engineer. They shall be adjustable and act as a spreader and tie also. When ties are removed or broken off, no metal shall be left closer than one (1) inch from the surface of the wall. Form ties shall not be placed in exterior walls above finished grade. Wood separators and wire ties will not be acceptable.

Provide and install metal key slots in the face of any concrete work where brick facing or partitions occur and provide necessary number of keys for anchoring masonry thereto. Slots shall be 18" o.c. for masonry facing.

No pipes or sleeves of any size shall be placed through beams, columns or slabs; other than those located on drawings, without prior approval from the Engineer.

If built-in items, not detailed or noted on drawings are required, this Contractor shall see that they are provided by the trades involved and built-in.

Mechanical and Electrical Contractors shall furnish and set inserts incidental to their work. Concrete subcontractor shall keep them informed as to the progress of the work in order that the setting of their inserts, sleeves, piping, etc., may be timed to cause the least delay to the work.

Install inserts, weld plates, bolts, and other accessories as indicated, noted or detailed on drawings, specified, or noted on shop drawings.

PART 3: EXECUTION

3.1 CONSTRUCTION OF FORMS

Wood forms for floor slabs shall be straight and true. Bottom edges of all joints, beams, girders, and exposed edges of all columns shall be chamfered. Saw marks shall be removed from face of chamfer strips. Forms for beam and girder sides and slabs of suspended floor construction shall be of new plywood or used plywood approved by the Engineer and may be re-used only after they have been cleaned and approved.

Edges of vertical columns abutting concrete walls, and exposed interior wall, columns and beam surfaces shall be lined with nonabsorbent smooth-faced board, or constructed of plywood, applied in maximum sized sheets with all joints neatly fitted.

Forms shall be built mortar-tight and shall be maintained so as to prevent warping and the opening of joints due to shrinkage of the lumber.

Where shoring supporting forms rest on the ground, some means shall be provided for detecting and deflection of the forms while concrete is being placed. The Engineer may require the Contractor to employ screw jacks which the Contractor shall have on hand or hardwood wedges to take up any settlement in the false-work either before or during the placing of concrete.

All forms shall be set and maintained true to the line designated until the concrete is sufficiently hardened. The forms shall be securely tied together by approved means and braced in a substantial and unyielding manner and so designed and built that the finished concrete will conform to the proper dimensions and contours, with a maximum tolerance in either the vertical or horizontal plane of 1/4" in 10 feet.

All dust, sawdust, shavings, and other debris, shall be removed from within the forms before concreting begins. For narrow walls where the bottom of the forms is inaccessible, the lower form boards shall be left loose on the back side so that they may be removed for cleaning out extraneous material, immediately before placing the concrete.

The interior of the forms shall be treated with coatings specified herein before, placing the concrete to insure non-adhesion of the mortar. Angles of the forms shall be slightly sprayed in order that they may be readily removed without injury to the concrete.

The foregoing specifications for "Forms" as regards design, mortartightness, fillet corners, leveled projections, bracing alignment, removal, reuse and coating, shall apply with equal force to metal forms. If metal forms are used, they shall be new. The metal used for forms shall be of such thickness that the forms will remain true to shape. All bolts and rivet heads shall be countersunk. Clamps, pins or other connecting devices, shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or line up properly shall not be used. Special care shall be exercised to keep metal forms free from ruse, grease, or other foreign matter which will discolor the concrete.

All shores supporting any concrete bridging, joints and beams, shall remain in place at least 15 days after placing of concrete.

3.2 WORK IN FORMS

After forms have been placed and approved, the Contractor shall see that all mechanics have been properly notified and are given sufficient time to complete the installation of their work. Placing of reinforcing steel shall proceed progressively with the work of the other mechanics and each shall arrange his working schedules so as to avoid disturbing or moving already installed by one trade to admit the work of another. Each trade shall be entirely responsible for the proper installation and securing of the work and each shall keep his work under observation during placing of the concrete.

3.3 FORMS REMOVAL

Forms shall remain in place for periods which will be determined as hereinafter specified or as directed by the Engineer.

All shores supporting any concrete bridging, joists, and beams, shall remain in place at least 15 days after placing of concrete.

No shores shall be removed without the express permission of the Engineer. The Engineer may require shores to be left in place for longer periods depending upon the temperature to which the concrete is subjected during the period of curing and upon the construction loads to be applied to the concrete after this 15 day period. Joist forms shall be so constructed that the forms can be removed without disturbing the shores under the bridging joist. Beam bottoms shall remain in place until shoring is removed. Joists shall be reshored between the beams and bridging joists immediately after the removal of the joist forms. Additional shores shall be placed under any points of concentrated loading. In warm weather, forms may be removed from walls in not less than 36 hours, and from any joists, sides of beams and columns in not less than 3 days. Removal of forms and shoring shall in any case be at the risk of the Contractor, but the Engineer may at any time refuse to permit their removal if in his judgment there might be resulting damage to the structure.

END OF SECTION

SECTION 03200 - CONCRETE REINFORCEMENT

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all concrete reinforcing steel, welded wire mesh and necessary related items indicated, noted or detailed on drawings and specified herein.

1.2 SHOP DRAWINGS

Provide complete reinforcing steel shop drawings to the Engineer for this approval in accordance with paragraph "SHOP DRAWINGS" on the General Conditions and Supplemental General Conditions.

Shop drawings shall be prepared in strict accordance with the requirements of the current edition of the Manual of Standard Practice for Detailing Reinforced Concrete Structure as published by the American Concrete Institute, ACI-315.

PART 2: PRODUCTS

2.1 STEEL

In general, reinforcing rods for concrete work shall have the size, position and number shown on the structural drawings.

All reinforcing steel shall conform to ASTM A-615-68. Steel for stirrups and column ties shall be Grade 40. All steel for main reinforcing shall be Grade 60.

2.2 WIRE MESH

Where wire mesh is indicated for reinforcing, it shall be of size and gauge as shown on the drawings, and shall be made of best quality drawn steel wire, woven mechanically of electrically welded to form the mesh. ASTM A-185-70. All sidewalks and stoops shall have 6x6 10/10 unless noted otherwise.

2.3 FABRICATION

All fabrication, including bending shall be done at the mill or in the shop. No field bending will be permitted. All pieces shall be labeled and like pieces shall be bundled together.

All stirrups groups shall be wired in units convenient for handling and stable in forms.

PART 3: EXECUTION

3.1 PLACEMENT

All steel shall be free from flaky rust, grease, dirt, scale, or paint. All reinforcement shall be held in position by suitable metal devices which shall insure accurate spacing both horizontally and vertically.

Where not otherwise indicated, bars in foundations and retaining walls shall be placed so that extreme face of steel is not less than 3" from exterior face of concrete.

Concrete cover for reinforcing bars not shown in standard details or on other details throughout the drawings shall conform to the minimum requirements of the ACI Code, latest edition.

The Engineer shall be notified by the Contractor when steel placement for a concrete pour is nearing completion so that the work may be inspected. Sufficient time shall be allowed for the steel setter to make any necessary corrections so that all reinforcement, correct in quantity, size and position, will be wired in place when concreting is started.

Bars shall be in long lengths and splicing shall be made in an approved manner, lapped not less than 30 diameters, unless otherwise indicated, but no splice shall be located at point of maximum stress. Bars of 18S size in foundations may be spliced using a mechanical tension butt splicing unit such as Cadweld "T" Series, meeting ACI Code Requirements 318-63 Section 805(b) and 805(d).
Steel must contain proper weld ability properties.

Reinforcing steel in slabs on earth shall be supported on metal rods or by concrete blocks not readily overturned.

All reinforcing steel shall be accurately located in the forms and firmly held in place before and during the placing of the concrete by means of supports adequate to prevent displacement during construction and to keep the steel at proper distance from the form.

Reinforcement shall have 3/4" of concrete covering in slabs and not less than 1-1/2" in beams unless otherwise specifically indicated on the drawings.

All rods shall be securely wired at intersection with No. 16 gauge annealed lacing wire. Reinforcing rods shall be bent or hooked as required, or as indicated by the drawings and shall be spliced only where necessary. All splices of rods shall be securely wired in a satisfactory manner.

Mesh reinforcement shall be well lapped at least 6" at ends and edges wired together at joints and supported on chairs as required for rods wherever conditions will admit of so doing.

END OF SECTION

SECTION 03300 - CAST-IN-PLACE CONCRETE

PART 1: GENERAL

The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Provide all concrete and necessary related work indicated, noted or detailed on the drawings and specified herein.

1.2 STANDARD SPECIFICATIONS

The ACI publication, "Standards and Code Requirements for Concrete and Reinforced Concrete", latest edition, shall govern all concrete work for this project except where otherwise specified herein.

PART 2: PRODUCTS

2.1 MATERIALS AND STORAGE

All materials, unless otherwise indicated, noted or specified, shall conform to the latest edition of the standard specification of the American Society for Testing Materials covering the materials being used.

2.2 CEMENT

Cement shall be an approved blend of Portland Cement of a standard brand and subject to tests hereinafter specified. All cement shall be protected from the weather and from dampness. No cement shall be used which has absorbed sufficient moisture to become lumpy when dry. The cement used shall meet the requirements of standard specifications for Portland Cement adopted by ASTM, seal designation C-150-71, and each shipment shall be accompanied by a certificate of test which shall be kept on file by the Contractor.

2.3 AGGREGATE

All aggregate shall be washed gravel, clean and free from loose soft stone, vegetable matter, or other ingredients which would affect the strength of the concrete. ASTM C-33.

2.4 SAND

Sand shall be thoroughly washed and shall be free from loam, soft stone, or other ingredients which would affect the strength of concrete. Sand shall be well graded from coarse to fine with coarse particles predominating, but containing no grains which will not pass through a 1/4" mesh. ASTM C-33.

2.5 GRAVEL

Gravel for non-reinforced concrete shall be 1/4 to 1-1/2" in size and gravel for reinforced concrete shall be uniformly graded from 1/4" to 1" in size unless otherwise specified. ASTM C-33.

2.6 WATER

Water used shall be fresh, clean and fit to drink, free from oil, acid, alkali, salts or organic matter.

2.7 METHODS

The methods used in piling and handling aggregates shall be such that the fine and coarse aggregates shall be kept separate prior to their placing into the mixer. They shall be kept clean and free from foreign substances. No aggregates shall be used in the work which has not been stored on the project site for at least twenty-four hours.

Aggregates shall be stored so as to insure the preservation of their quality and fitness for the work. When considered necessary by the Engineer, they shall be placed on wooden platforms or other hard, clean surfaces and not on the ground, and shall be located so as to facilitate proper inspection.

No bank run gravel will be permitted on the work except for certain fill.

Air entraining agent shall be a neutralized vinsol resin type furnished in a water formulated solution meeting the requirements of ASTM C-260.

The use of hydrated lime or other admixtures to increase the fluidity, density, or to hasten the seasoning of the concrete will not be permitted unless approved by the Engineer.

Floor slab to receive curing/sealing/hardener compound. The product to be used shall be "Burke 1101 Acrylic Cure/Seal/Hardener", or equal on all floors and exterior concrete slabs-on-grade. Provide submittals for approval on the curing/sealing/hardener compound.

2.7 DESIGN OF MIX

The concrete mix shall be proportioned and designed to develop a minimum ultimate compressive strength of 3000 psi and 4000 psi at 28 days and shall be such as to produce concrete that will work readily into the corners and angles of the form and around the reinforcement without excessive spading and without permitting the materials to segregate or free water to collect on the surface.

A minimum of 5 sacks of cement per yard shall be used for 3000 psi concrete, 6 for 4000 psi concrete. All footing concrete shall be Fc'=3,000 psi. All concrete above the footings, slabs on grade, and floor slabs shall be Fc'=4,000 psi.

No more than 6-1/2 gallons of water per sack (94# cement) shall be used per batch. The water content of the concrete shall be the least that will produce uniformly dense concrete free from aggregate pockets or honeycombs.

Corrections shall be made for the amount of moisture contained in the aggregates and allowances shall be made for absorption of moisture by the aggregates during the period of mixing and handling.

The water-cement ratio, including free water in aggregate, shall not exceed that approved by the Engineer. Variations and corrections in slump shall be made by correcting the proportions and amount of aggregates used.

Cement mortar for topping and grouting shall be mixed in the proportions of one part cement to not more than two parts, clean, fine sand, unless otherwise noted.

The proportions herein specified for mixing of concrete shall not be varied except as may be found necessary to meet the test requirements herein specified and then only on the instructions of the Engineer.

All concrete exposed to weather, except slabs and flat work which are to receive trowel finish, shall be air-entrained with air content controlled at 5% +/- 1%, by volume.

Steel stair treads and platforms and certain areas, where indicated on the drawings, shall receive a fill of thickness indicated, composed of 1 part Portland Cement, 2-1/4 parts sand and not more than 3-1/2 parts pea gravel, struck off and steel trowelled to a smooth dense surface, using only such amount of dry mixture of 2 parts cement to 3 parts sand as necessary to prove workable.

Materials for concrete shall be measured separately by weight; proper provision shall be made, as approved by the Engineer for measuring of materials and water used in each batch.

2.9 MIXING

A. PLANT MIX CONCRETE. If plant mix or mixed-in-transit concrete is used, each shipment shall be accompanied by duplicate certificates, showing analysis of the mix. It shall be produced in conformance with the standard specifications for "Ready Mixed Concrete" Serial Designation C94 of the American Society for Testing Materials within the limitations of materials composition, consistency, quality, inspecting and testing as provided therein.

B. JOB MIX CONCRETE. If concrete is prepared at the site, it shall be mixed in a standard type of mechanical batch mixer that mixes one complete batch at a time, which is entirely discharged before another is introduced.

The concrete shall be mixed to the desired consistency and until the mass is uniform in color and homogeneous.

The mixing shall continue for at least one (1) minute after all ingredients are in the mixer.

During the period of mixing, the drum shall operate at the speed for which it was designed, except that peripheral speed of the drum shall not be less than 175 nor more than 225 foot per minute.

If this procedure does not effect a thorough mixing of the concrete, an additional number of turns at the same rate of speed shall be given until a thorough mixing of each batch of concrete is secured. The entire contents of the mixer shall be removed from the drum before material for the succeeding batch is placed therein and the mixer shall preferably be equipped with mechanical means for preventing the addition of aggregate or water after mixing has commenced.

The mixer shall be equipped with adequate water storage and a calibrated measuring device for accurately measuring the amount of water used in each batch. The mixer shall be equipped with a batch meter for accurately recording the time of mixing of each batch and also an attachment for automatically locking the discharge chute so as to prevent the emptying of the mixer until the materials have been mixed with the specified minimum time. No mixer shall be operated above it's rate capacity, or be used which has a rated capacity of less than one (1) sack batch, and batches requiring a fractional sack of cement shall not be mixed unless the cement is batched by weight.

The first batch of concrete materials placed in the mixer shall contain an additional quantity of cement, sand and water, sufficient to coat the inside surface of the drum without diminishing the mortar cement of the mix. Upon the cessation of mixing for any considerable length of time, the mixer shall be thoroughly cleaned.

Care shall be taken to secure the exact proportions at all times. The mixed concrete shall be, as stated hereinbefore, of plastic consistency that will flow into the form of trenches and about reinforcement where used for any reinforced work, but shall not be so wet as to cause separation of materials.

Concrete shall be mixed only as required for immediate use and shall be conveyed directly from the mixer and deposited in place. Concrete in which the initial set has occurred shall not be used.

A competent foreman shall be in attendance at the mixer to give account of each batch, which leaves the mixer.

PART 3: EXECUTION

3.1 PLACEMENT OF CONCRETE

Proper provisions shall be made before the concrete is placed to embed all inserts, including inserts to be provided by others.

It will be each subcontractor's responsibility to provide the Contractor with information regarding openings or chases he will require in the concrete work and to provide all his items which will be cast into, embedded in or will otherwise be monolithic with the concrete pour. The Contractor, prior to placing any concrete, shall give written notice to the Engineer and all subcontractors of his intention to place concrete and his schedule of placing.

Provide concrete curbs, sills, bases, etc. as detailed on drawings.

No concrete shall be placed until after the bearing soil has been inspected and approved by the Engineer. Concrete shall not be placed upon frozen ground. Dry soil shall be thoroughly dampened except in freezing weather or as otherwise directed. Forms shall be thoroughly cleaned out, wetted, oiled, or lacquered before concrete is placed.

No concrete shall be placed until the Engineer has inspected and approved the forms and placing of reinforcement. After inspection and approval of forms and reinforcements, Contractor shall proceed with the placing of concrete. All slabs shall be filled to the top surface in one continuous operation. If possible, the placing of concrete shall be carried on as a continuous operation until the completion of the section. If for any reason, placing of concrete has to be stopped before the completion of the part being poured, greatest care must be exercised to stop at a point where the joint will not weaken the construction. Such joint shall be at the point of minimum shear stress in the concrete.

The maximum pour for slabs shall be as noted in General Notes on the drawings.

Concrete shall be placed so as to avoid segregation of the materials and the displacement of the reinforcement. The use of long troughs and chutes for conveying concrete from the mixer to the forms shall be permitted only on authorization of the Engineer.

All chutes, troughs, etc. shall be kept clean and free from coatings of hardened concrete by flushing with water after each run; water used for flushing shall be discharged clear of the concrete already in place.

Concrete shall not be permitted to drop freely more than five (5) feet and it will not be permissible to allow concrete to run or be taken to fill each part of the form by depositing the concrete as near final position as possible. The coarse aggregates shall be worked back from the forms and the concrete forced around the reinforcement without displacing bars. Concrete shall not be permitted to flow under runways or other obstructions that makes spading impossible.

Concrete shall be spaded and puddled with proper tools into compact, homogeneous mass.

The concrete shall be placed as rapidly, continuously and in as large areas as possible, or until the unit of operation as previously approved has been compacted. In any given operation the batches shall be placed that each shall be installed and compacted before the preceding one has taken it's initial set, so that perfect joining will be effected without marked indication on the finished faces of the concrete.

The Contractor shall keep a capable mechanic on the job during the placement of concrete to keep reinforcement in proper alignment and spacing.

Insert asphalt strips of sufficient width against all masonry where cement work is installed, to protect masonry while concrete is being placed.

3.2 MECHANICAL VIBRATION

The concrete shall be compacted by means of mechanical vibrator operated within the mass of concrete.

Vibration shall be supplemented by hand spading. The concrete shall be spaded by hand in all corners and angles of the forms and along all form faces as elsewhere herein specified. The concrete shall be vibrated with a frequency of not less than 7000 impulses per minute, the vibration shall be of sufficient intensity and duration to cause flow or settlement into place and complete compaction. Care must be exercised that concrete is not over-vibrated, particularly if it is of a relatively wet consistency exceeding 4" in slump and that vibrators are not used to transport concrete in the forms. Vibrators should be inserted and withdrawn at many points from18" to 30" apart for short periods, usually from 5 to 15 seconds is sufficient, in preference to insertion for longer periods at wider intervals. Systematic spacing of insertions of the vibrator should be established to insure that no concrete is missed. Vibration shall be applied to the mass at the point of deposit and in the body of freshly deposited concrete.

The mechanical vibrator shall be of a type and design approved by the Engineer. It shall be adequately powered and capable of transmitting vibrations of the required frequency to the concrete.

The vibrator shall be applied to the concrete immediately after deposit and so manipulated that the concrete is reduced to a uniform plastic mass thoroughly compacted. It shall be thoroughly compacted around the reinforcement and worked into the corners and angles of the forms. The vibrators shall not be attached to the forms or the reinforcement nor shall it be placed on reinforcing steel.

Concrete shall be placed in layers of uniform thickness and the apparatus so operated that the vibrating element does not penetrate through the layers of fresh concrete and disturb partially hardened concrete in lower layers. Vibrators shall not be pushed into the mass of concrete too rapidly and should be withdrawn slowly.

3.3 TESTS

During the progress of the work, the general contractor shall make test cylinders from the run of the concrete mixer. These test cylinders shall be made in strict compliance with ASTM C-31 latest revision. <u>All concrete testing shall be paid for directly by the Owner and not included in the Contractors Bid. Coordinate with the Owner as required.</u>

Four cylinders shall constitute a set of test cylinders. Separate tests will be required from each concrete pour for footings, walls, columns, and two sets from pours for concrete floor slabs in each story including roof.

These tests shall be made on 6" x 12" concrete cylinders loaded in compression at 7, 14, and 28 days. Fourth cylinder is to be kept as a spare. The Contractor shall cooperate in every way that in the end concrete of the desired quality be obtained.

All concrete shall contain the minimum properties of strength.

Air content of fresh concrete shall be determined according to ASTM designation C-231, latest edition. Test for air content shall be made at the point of delivery.

Slump tests made in accordance with ASTM C-143, latest revision, shall be made by the Contractor from the run of the mixer. The average slump of these samples shall constitute a test. The maximum average slump for footings and floors placed on ground shall not exceed 3 inches, and for reinforced work shall not exceed 5 inches. Should any set of samples show greater slump than hereinbefore specified, the proportions of the mix shall be varied until the proper slump is obtained, but under no conditions shall the amount of water specified per sack of cement be increased. Contractor shall provide hollow metal cones for making slump tests.

If for any reason, in the opinion of the Engineer, the testing of any section of the completed reinforced concrete structure is necessary, a superimposed load shall be applied by the Contractor and the test conducted in accordance with the current Building Rules and Regulations of the State of Indiana. In cases where failure is declared, the Engineer shall have the authority to order the defective construction removed. All expense of removing such defective construction and substituting new construction, including expense of removing and replacing the work of others, or protecting and repairing the work of others shall be borne by the Contractor.

3.4 JOINTS

Provide and install 1/2" expansion strips at edges of concrete slabs and floors around all columns and elsewhere where noted or specified.

Expansion joint material for these locations shall be preformed, non-extruding.

Provide and install expansion joints in exterior slabs where noted. These joints shall be between poured in place concrete top slabs and walls and wherever shown, shall be as detailed. This detail shall also apply at all waterproof slabs.

Control joints as detailed shall be provided where noted on drawings.

3.5 CONCRETE FINISHES

GENERAL The surfaces of all concrete shall be thoroughly worked during the operation of placing by spading as hereinbefore specified. The working shall be such as to force all coarse aggregate from the surface and thoroughly work the mortar against the forms to produce a smooth finish free from water and air pockets or honeycomb. All concrete surfaces shall be true and even, free from honeycombing stone pockets and excessive depressions, projections or air pockets.

FINISHING WALLS All interior exposed concrete shall have all fins and projections removed and the rough surface produced by this operation shall be rubbed smooth. All depressions shall be filled with mortar of the same proportions as the mortar used in the body of the concrete and this mortar shall be smoothed with a wooden float. This work shall be done closely following removal of the forms. All exposed surfaces in finished and unfinished rooms shall be left clean and smooth and shall present a neat and finished appearance.

Concrete which has a total area of honeycombed surfaces in excess of one (1) percent of the total surface area of the forms used for any member of the pour in which the honeycombing is present will not be

accepted and must be entirely removed and new concrete substituted by the Contractor at his own expense. Work of other Contractors adjacent to or incorporated in the concrete to be removed shall be removed, and replaced, protected, and repaired to the satisfaction of the Engineer at the General Contractor's expense.

Honeycomb surfaces, for the purpose of enforcing this specification, are hereby defined as the concrete surfaces, next to forms, in which there are voids between the particles of coarse aggregate.

The small amount of honeycomb permitted to remain shall be filled with mortar of the same consistency as the mortar used in the body of the concrete and smoothed with a wooden float, closely following removal of forms. The Engineer shall stop the removal of forms unless the requirements of this section are carried out. Tops of walls shall be floated smooth. The Contractor shall also perform any other operations in addition to those specified herein that may be required to produce the results specified.

All exterior exposed walls shall be given the following treatment: Prepare a grout of about the proportions of one part cement to one part fine sand. Grout shall be of the consistency that will permit it's application to vertical surfaces with a stiff bristle brush.

The grout shall be brushed and floated on the previously dampened surfaces to fill completely all air bubbles and indentations in the concrete. Allow grout to remain on wall until the cement has partially set, then remove excess grout with a steel trowel. After drying for an hour or longer, depending on weather conditions, rub the wall vigorously with burlap to completely clean the grout from the surface leaving pits filled, but there shall not be a visible film of grout on the surface. To lighten up the surface, replace part of the grey cement with approximately 30% of white cement. Rubbing up a lather with a carborundum stone shall not be permitted.

FINISHING FLOORS Immediately following the pour, the concrete shall be screeded off to bring the top surface to proper contour and elevations. Floors, unless otherwise noted, shall be held perfectly level. Where drains occur or slope is indicated, they shall be pitched toward drains or in direction indicated on drawings.

Soon after screeding and while the concrete is still plastic, the surface shall be floated with wood or metal floats and brought to a true grade.

Floor shall be steel trowelled to a smooth and perfect surface after the concrete has hardened enough so that water and fine material are not worked to the surface.

Do not trowel while concrete is too soft or plastic, as this will result in a less wear-resistant surface.

No walking or wheeling shall be permitted on the concrete floors until concrete is thoroughly set.

Floors shall be protected until final completion of the job. Any rough places which develop shall be machine ground before any covering is applied.

Excess water shall be screeded off and the surfaces left clean and level.

In placing depressed slabs, forms shall be provided for forming the edges of depressed sections. These shall be accurately placed with breaks located as directed.

FINISHING EXTERIOR WORK Drive and walks shall have a broom finish which shall be done after the concrete is hard enough so that it will retain the scoring.

Concrete steps, concrete platforms, etc. shall be finished in the following manner.

As soon as water has risen to the surface of treads, it shall be brushed off and the surface sprinkled with dry cement approximately 1/16" thick, over which apply 1/2" of cement mortar topping trowelled to a smooth and perfect surface. As soon as concrete has set sufficiently to be firm, remove the forms from the riser and steps, and remove all fins, ridges, etc. from the surface.

Treads of all concrete steps which do not receive a covering shall have 1/4 lbs. sq. ft. non-ferrous abrasive material, as hereinbefore specified, trowelled into top coat to prevent surface from becoming slippery. In final trowelling do not buy the grit.

3.7 FLOOR HARDNER

Where schedule of interior finish indicates hardened concrete floors, material to be used shall be non-metallic hardner as specified hereinbefore, applied in strict accordance with manufacturers instructions.

3.8 CURING CONCRETE

Concrete surfaces exposed to conditions causing premature drying shall be protected within twenty-four (24) hours of placing. Horizontal surfaces shall be protected by covering with canvas, burlap, sand or other satisfactory material and shall be kept moist. Curing shall continue for a period of not less than five (5) days after placing the concrete, unless otherwise directed by the Engineer. Other precautions to insure the development of strength shall be as specified hereinbefore applied in strict accordance with manufacturers instructions.

3.9 CONCRETE PROTECTION IN COLD AND HOT WEATHER

Recommended Practice for hot weather concreting (ACI 305) Recommended Practice for winter concreting (ACI 306) Where temperature is below 40 degrees F. all water and aggregate used in concrete, shall be heated to a sufficient temperature to make the concrete not less than 60 degrees F. when deposited in place.

Ice and hoar frost shall be removed from the forms with steam jet immediately before concrete is placed. Gauging water shall be heated by a steam jet discharging directly into the water. Aggregate shall be heated by steam pipes properly placed under the aggregate in such manner as to distribute heat throughout the mass. Other methods of heating and aggregate shall not be used unless approved by the Engineer.

The use of salt or other chemicals to accelerate the hardening of concrete will not be permitted under any circumstances.

When, in the opinion of the Engineer, it is necessary, the foundation material on which the footing is to rest shall be protected from freezing.

Immediately after a pour is completed, the freshly poured concrete shall be housed in with tarpaulins or by lumber housing and the air within the enclosure shall be kept at a temperature above 70 degrees F. for a period of seventy-two (72) hours. If for any reason this temperature is not maintained the aging period shall be extended.

The Contractor shall supply such heating apparatus as stoves, salmanders or steam equipment and the necessary fuel. When dry heat is used, means of maintaining atmospheric moisture shall be provided. The aggregates may be heated by either steam or dry heat. The Contractor will be required to keep a watchman on the job at all times during the heating period to insure the maintenances of the proper temperature around the concrete and to see that the concrete is not damaged by fire.

Any concrete placed when the air temperature is at or below 35 degrees F., will be at the Contractor's risk and if such concrete becomes frozen or is inferior in any respect, it shall be removed and replaced at the Contractor's expense.

END OF SECITON

SECTION 04200 - MASONRY

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all material and do all work including face brick work, common brick work, concrete block work, setting of iron and steel in masonry, etc. and such miscellaneous items of masonry work required to complete the building in accordance with the drawings and these specifications.

PART 2: PRODUCTS

2.1 FACE BRICK

Brick facing of exposed surfaces of exterior walls and interiors where noted shall be best quality #1 hard-burned vitrified face brick conforming to ASTM C216 Grade SW.
Exterior brick shall match existing work as close as possible.

2.2 COMMON BRICK

Where brick are required for backing up and miscellaneous work, etc. they shall be best quality hardburned common brick, free from any defects that will affect the strength of the wall. ASTM C62-66 with minimum compressive strength of 4500 psi.

2.3 CONCRETE MASONRY UNITS

A. STANDARD. Furnish units complying with ASTM C90 of thickness shown on drawings where required.
Match existing as required on building additions and alterations.

B. LIGHTWEIGHT UNITS. Units for interior partitions and backup of exterior walls where noted, shall be lightweight complying with current ASTM Standards. Cinder blocks will not be acceptable.
Match existing as required on building additions and alterations.

C. SPLIT-FACED UNITS. Furnish units complying with ASTM C90 and ASTM C145, for grade N, Type 1 (moisture controlled) for load Bearing concrete masonry units.
Match existing as required on building additions and alterations.

Cracked, warped, chipped or unsound units will not be acceptable.

Furnish all special shapes required, including bullnose, if indicated, lintel blocks, etc.

2.4 MASON CEMENT

Material shall conform to ASTM C-91.

2.5 MORTAR COLOR

Match existing as required.

2.6 SAND

Material conform to ASTM C-144-77T, fine to coarse with no particles which will not pass through a 1/4" mesh.

2.7 LIME

(1) ASTM C-5-59 for quick lime, (2) ASTM C-207-49 for hydrated lime.

2.8 WATERPROOFING ADMIXTURE

Hydrocide Powder, by Sonneborn Building Products, Inc., Toxement I.W. by Toch Bros., Inc., or equal.

2.9 WATER

Clean and free from deleterious materials.

2.10 ANCHORS

Build in dovetail anchors at approximately 2'-0" spacing for attaching masonry to concrete.

2.11 MASONRY WALL REINFORCING

For horizontal reinforcing of solid type exterior walls -9 ga. knurled side rods and 9 ga. cross ties, triangular pattern, sizes to fit wall thickness. ASTM A82-62T.

2.12 CONTROL JOINTS

Cross shaped extrusions by Dur-O-Wall, or equal.

2.13 STORAGE

Protect all material off ground and under tarpaulins or shed, to prevent absorbing moisture.

PART 3: EXECUTION

All concrete blocks shall be dry units and units which exceed 30% of the total absorption of the units shall be dried before installation.

3.1 MORTARS MIXING

Below grade and for bearing under structural members, 1 part Portland cement, 1/4 hydrated line or lime putty and three parts sand. All other mortar for brick and concrete block, unless otherwise specified, shall be mixed of one part Portland cement to two parts by measure of well slacked lime putty or hydrated lime and not more than three parts of clean sand to one part of the mixed cement and lime. Cement for mortar shall not be added until the mortar is ready for use. No retempering of mortar will be permitted in the work or prepared mortar as used for exterior work.

Sand for mortar shall range from fine to coarse with no particles which will not pass through a 1/4" mesh.

To mortar for all exterior face brick walls, add waterproofing admixture specified hereinbefore in the proportion of one pound for each sack of cement, and one pound for each cubic foot of lime putty in exact accordance with the directions of the manufacturer.

Prepared mortars, similar to Brixment, Carney, Lonestar, Alpha, or Kosmortar may be used, subject to approval. Waterproofing admixture shall be used at the rate of one pound for each cu. foot of prepared masonry mortar if integral waterproofing is not in prepared mortar.

Color for mortar will be selected later.

3.2 LAYING MASONRY UNITS

No masonry shall be started on any concrete work for at least 3 days after concrete is poured, and in no case until concrete has taken final set.

Units shall be laid with solid head and bed joints. All walls and piers must be build plumb, level and true. Line is to be used on all long stretches, and straight edge on all face brick work. Bed and head joints for brick and block masonry shall be approximately 3/8". Joints in walls of scored units shall match width of scoring.

All backing up shall be carried up with the face brick facing to permit anchoring of same. Face brick shall not be laid up more than six courses ahead of the backing. Face brick laid 3 course to 8".

The back of all exterior face brick shall be parged with no less than 3/8" of mortar specified for face brick.

Face brick shall be laid in running bond unless otherwise indicated on the drawings. All concrete block shall be laid with a running bond unless indicated otherwise on the drawings.

Mortar shall be spread on each wall section before wall ties are placed to provide a seal between the tie and the brick. No wall tie should be placed with a pitch towards the inner wall. Wall ties shall be placed within 3 in. of all wall openings, at the bottom of beams, joists or slabs that rest on wall.

Exterior face brick shall be laid in furrowed bed joints. Furrows shall be no deeper than necessary and sufficient mortar shall be used so that when brick are laid the furrows will be entirely filled.

The ends of each face and sides of face brick headers shall be fully covered with mortar from the mortar board before the brick is laid. The brick shall be shoved against the brick already laid causing the mortar on the end of the brick or side of header, being laid to be compressed between the two bricks. Sufficient mortar should be used to make a full head joint. Head joint requiring slush will not be acceptable. When head joints are not made full by shoving, the brick shall be removed from the wall and relaid.

Re-spacing of bricks will not be permitted except by taking up bricks and relaying them properly.

All common brick shall be laid on full mortar beds and shall be slid into place to produce full head and collar joints by shoving some of the bed mortar into the head and collar joints. The "pick and dip" system will be acceptable in order to accomplish this result. All joints not completely filled by shoving shall be slushed full.

The intent of this specification is to produce solid walls having no unfilled spaces whatever except the cavity in exterior walls.

All bed and head joints, except as noted hereinafter, in exterior and interior exposed brick, and block, shall be carefully tooled to produce concave joints with no holes or cracks. Head joints shall be tooled twice; once before the bed joints are tooled and again after the bed joints are tooled.

Split-Face exterior walls shall have raked joints on the split-face side. Match Existing.

Wall joints shall be thoroughly bonded together where possible where they meet with no block joints used.

The horizontal courses must be laid out with a story pole and vertical joints kept plumb.

Concrete block units shall be laid with cells vertical. Bed and head joints shall be about 3/8" thick with head joints carefully buttered. Block shall be laid to line, level, plumb and true.

Special care shall be taken in laying all exposed concrete block and all joints shall be tooled. All holes or chips shall be filled with mortar and struck off smooth so that wall presents an even, smooth surface suitable for finishing by painting. Mortar joints in face of wall to be plastered shall be struck off flush with the face of wall.

Build in window and door frames, steel lintels, conduits, pipes, cabinets, etc., of other contractors as the work progresses. Vertical chases shall in no case be closer than 1'-0" to jambs of windows or door. Leave chases and other openings for pipes, etc. as required by other trades and do necessary cutting of masonry walls for steel and iron work which is to be embedded in masonry.

Install flashing specified hereinafter in Division 7.

All cutting of exposed concrete block and glazed units on the job shall be done with a power driven saw.

Where metal door and window frames occur, the brick or block shall extend into the flanges of the frames and the entire space slushed full and solid with mortar.

Partitions shall extend to floor construction above and grouted.

Build in conduits, pipes, etc., of other contractors as directed. Area over door frames, which extend to ceiling line will be closed off with lintel blocks and concrete blocks to structure above.

Horizontal joints in brick walls where relieving angles occur shall be raked out clean and caulked in lieu of pointing with mortar.

All brick shall be wetted, but not soaked, before being laid unless otherwise directed. Concrete units shall not be wetted.

3.3 WALL TIES, BONDING AND REINFORCEMENT

All exterior masonry walls shall be reinforced with heavy duty hot dipped galvanized welded wire reinforcement installed in every second horizontal joint in concrete block or every ninth course of brick.

Solid type exterior walls of face brick and block backup shall be reinforced with welded wire reinforcement.

Prefabricated "corner" units shall be used on all corners and prefabricated units shall be used at all interior partitions intersections.

Reinforcing shall be continuous throughout. Where joints occur material shall be lapped 12".

Where face brick, common brick or concrete block passes concrete spandrels, columns, etc., brick shall be anchored to keyslots in concrete.

Partitions that intersect exterior walls shall be anchored at every other course, using 1/4" x 1-1/4" galvanized metal anchors with end turned up 2" and extending 4" into wall and not less than 8" into partitions.

Mortar shall be spread on each wall section before the reinforcing units are placed to provide a seal between the wire and the block.

Bearing walls shall be reinforced with vertical rods and voids completely filled if indicated on plans or detailed.

All interior blocks partitions shall be reinforced in every horizontal joint with mesh type galvanized masonry reinforcement.

3.4 CONTROL JOINTS

A. RUBBER CONTROL JOINTS

Rubber joints shall be employed on interior concrete block walls as indicated on drawings and/or as specified. All such joints will be constructed with "cross-shaped" rubber extrusions and standard metal sash block, as specified hereinbefore.

Control joints shall be as shown, or at a distance equal to twice the height of the wall or 30'-0" on center, whichever is less.

Joint reinforcing shall not extend through the control joint, rubber extrusions for the control joints shall not extend through the control joints.

B. PVC CONTROL JOINTS

PVC joints shall be employed on exterior concrete block walls as indicated on the drawings. The units shall be Dur-O-Wall Poly-Joints of size required for wall widths shown.

3.5 SEALED JOINTS

Joints in exterior brick walls shall be sealed joints. Sealant shall be as specified hereinafter in Section 7.

3.6 PROTECTION

During construction, except when work is actually under way on walls, tops of all walls shall be kept covered with waterproof cover, well secured.

Provide means to prevent water from running off of floor, decks or roof, on or down over walls.

Masonry shall be protected from freezing for at least 48 hours after being laid. If joints indicate any freezing, walls shall be taken down and re-laid.

No masonry work shall be permitted when temperature is less than 32 degrees F. or below 40 degrees F. and falling unless the following precautions are taken:

A. Below 40 degrees F. but above 32 degrees F.: Heat mortar mixing water, but not above 160 degrees F. Mortar when placed shall be between 70 degrees F. and 100 degrees F.

Plastic sheet or tarps shall be placed over the newly laid walls.

B. Below freezing, but above 0 degrees F.: In addition to proceeding requirements, sand shall be heated, but not scorched. The working areas shall be enclosed with protective coverings and artificial heat provided. When the temperature falls below 20 degrees F. all masonry units shall be heated to at least 50 degrees F. at job site by contractor.

C. Below 0 degrees F.: Construction shall be stopped unless enclosure is complete and tight. Observe all preceding requirement.

D. Contractor may use an admixture for cold weather work (Trimix by Sonneborn or equal) if prior permission is obtained in writing, from the Engineer, and material is used strictly in accordance with manufacturers specifications.

No masonry shall be laid with or on frozen materials.

3.7 PROTECTION OF WORK IN PLACE

It shall be the responsibility of this contractor to protect all walls which have erected from wind, seismic, or lateral loads prior to completing the walls and having all the structural elements in place to properly support the walls. Lateral bracing shall be employed to hold the walls in place until the walls and all structural support elements are in place to make the system act as a unit.

3.8 POINTING AND CLEANING

When all work has been completed on the building, contractor shall clean down exposed masonry, both exterior and interior, removing all mortar, concrete, splashing, etc., with stiff brushes and water to which may be added soap powder and fine sand if necessary. The use of acid will not be permitted.

The mason shall go over all work throughout after it has been cleaned, and do all necessary pointing, etc., to put the work in first class condition to the satisfaction of the Engineer.

After all trades have completed their work, the mason shall fill all openings around pipes, conduits, etc., to the satisfaction of the Engineer.

3.9 FLASHING

Flashing shall be installed over window and door openings, in cavity wall construction, at relieving angles, spandrels, at base of cavity walls and wherever else details show it to be used.

Flashing shall be as specified in Section 7.

3.10 GROUTING (COLUMN BASE PLATES)

Grouting of steel column base plates shall be with a non-metallic material.

Material used shall be standard Portland cement, fine sand and "Sika Set" as manufactured by Sika Chemical Corporation.

Material shall be mixed using one (1) part Portland Cement, two (2) parts fine sand and Silka Set, diluted with 2 to 5 parts water depending on desired initial set.

END OF SECTION

SECTION 5400 - LIGHT GAGE METAL FRAMING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes installation of all light gage metal framing as shown on the drawings.

1.2 SUBMITTALS

A. Submit manufacturer's product literature and installation instructions for type of stud or channel specified on the drawings.

B. Submit data showing physical properties of fasteners to be incorporated with this work.

1.3 QUALITY ASSURANCE

A. Installer: To be a regularly engaged in the installation of light gage metal framing work specified and shall have proper experience to install the work specified.

B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of the light gage metal framing specified.

PART 2: PRODUCTS

2.1 METAL STUDS

A. Size, spacing, and gage are called for on the drawings along with the type/model as mfg. by ClarkWestern Building Systems, Inc. Other mfg. will be allowed upon approval.
Use 16 gage metal studs on either side of all door openings and for all lintels for openings.

2.2 METAL TRACKS

A. Tracks shall be of the same gage as the metal studs unless otherwise noted on the drawings.

2.3 CONNECTIONS

A. Connections shall be as standard by the mfg. installation instructions for the type of work shown.

PART 3: EXECUTION

3.1 INSTALLATION

All products to be installed in strict accordance with the manufacturer's installation specifications.

END OF SECITON

SECTION 06100 - ROUGH CARPENTRY

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all labor, materials, equipment, special tools, supervision and all services required to complete all rough carpentry work indicated, noted or detailed, or the drawings and specified herein.

Furnish all rough lumber, etc. and all labor necessary to install same. Any item or part required to complete the installation to that intended by the drawings shall be furnished and installed as though it were indicated, noted or specified.

Wood Grounds as required.
Wood nailing blocks as required.
Scaffolding.
All rough hardware of every description.
Boxing and guards necessary to protect pre-cast work, masonry, plumbing, fixtures, etc.
Wood vent curbs on roofs.
Miscellaneous shelving.

This also includes the temporary enclosing of the building and erection of barricade when required and the prompt performance upon request and without extra charge of all necessary cutting, framing, jobbing, etc. for other craftsmen on the building excepting only such as has been heretofore specified to be provided by them.

Read all other specifications for work by other trades and include all carpenter work and work in wood as part of the work under this Section.

Note that Specifications for wood from work required in connection with concrete is hereinbefore described in Division 3.

PART 2: MATERIALS

2.1 MATERIAL

Lumber:

1. Framing (Beams and Lintels): Southern Yellow Pine, #1 Grade.
2. Studs: Spruce, Pine, Fur #2 grade.
3. Grounds, blocking and nailers: standard or Utility Grade of above species.
4. All lumber shall be grade marked and trade marked.
5. Moisture Content: Kiln dried to maximum 15%.

Plywood:

1. Exterior Plywood: Medium density, trade marked EXT-DFPA, constructed of waterproof glue and grade marked A-C where one side is exposed, A-A where both sides are exposed and B-C where concealed.

2. Interior Plywood: Trade marked INT-DFPA or EXT-DFPA, constructed with moisture resistant glue, grade marked A-B where one side is exposed, A-A where both sides are exposed and B-D where concealed.

Treated Wood:

1. Conform to FS TT-W-571, Table 3.
2. All lumber in contact with masonry, concrete, or roof shall be redwood, cypress or preservative treated with water borne salt preservative, AWPI LP-2.
3. Brush all field cuts with preservative used in pressure treatment.
4. Lumber redried to maximum moisture content of 19%, marked DRY.
5. Fire Retardant Plywood: AWPA C 27.

Rough Hardware:

1. Bolts: FS-B-575.
2. Lag Screws and Bolts: FS FF-B-561.
3. Toggle Bolts, Expansion Shields: FS FF-B-588.
4. Wood Screws: FS FF-S-111.
5. Nails: FS FF-N-105.

2.2 STORAGE

All lumber shall be stored off the ground and kept covered and protected from the weather until used in the project.

PART 3: EXECUTION

3.1 PRELIMINARY AND ENCLOSING

Install studs at all entrance door openings and provide and hang temporary pattern doors fitted with hinges, lock and key. Provide temporary enclosures for all openings on the Ground Floor, or at ground level. Keep in proper repair until final doors and sash are installed.

3.2 LABOR

All labor employed shall be skilled and under the supervision of a competent foreman.

Furnish, set and maintain runways of ladders, leading from lowest level of the building to the roof, with proper landings at each floor for the general use of all workmen. Provide temporary 2 X 8 plank treads in metal pan stairs.

Build approved covers over sills, etc. exposed to falling materials or debris.

Protect all open well holes, shafts, etc. or other places in the building which are dangerous to like and limb with strong barricades.

3.3 GROUNDS

Furnish and set any grounds required. Grounds must be well secured in place, run true and plumb, and nailed to masonry by means of wall plugs.

3.4 NAILING PIECES

Carpenter shall provide wood furring, spot grounds of wood brick for insertion into walls where necessary and shall see that same are inserted into proper place during the construction of masonry.

3.5 HARDWARE INSTALLATION

Set all finishing hardware and protect same until building is accepted. Knobs and handles to be covered with flannel or similar material. All other hardware, such as nails, bolts, screws, and other rough hardware, shall be furnished by this contractor.

When finishing hardware is received at the building, the contractor shall check same, together with a representative of the hardware company, and he shall immediately report to the Engineers, any shortage of variation from the list furnished him. See specifications for finishing hardware.

3.6 SETTING DOOR FRAMES

Set all door frames and securely brace as approved.

3.7 UTILITY SHELVING

Furnish and install miscellaneous shelving in rooms wherever noted, scheduled or detailed. All shelving shall be 3/4" thick particle board "Novoply" or equal, and shall be supported on wood framing as detailed or wall cleats as detailed.

3.8 WOOD CURBS FOR ROOF VENTS

Vent curbs shall be as detailed and shall be constructed of pressure treated #1 yellow pine or Douglas Fir.

3.9 INSULATION EDGING

At edge of roofs install 6" wide X thickness indicated, wood nailers prior to installation of roof insulation specified in Division 7. Wood nailers at edges of gravel stops and fascias shall be untreated material. Nailers at edges of insulation that abut rising surfaces shall be pressure treated material.

3.10 BLOCKING FOR GRAVEL STOPS

Provide and install wood blocking cut to size and shape shown, bolted into walls or roof decks with staggered bolting as shown.

END OF SECTION

SECTION 06130 – WOOD TRUSSES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

A. Work includes design and installation of all pre-engineered wood trusses shown on the drawings.

B. Wood trusses shall be furnished and fabricated by a fabricator regularly engaged in the design and fabrication of wood trusses.

PART 2: MATERIAL

2.1 LUMBER

A. Lumber shall be structural grade free of knots and other defects.

2.2 TRUSS DESIGN

A. The wood trusses shall be designed by a registered licensed professional engineer with the design sealed in the State of Indiana.

B. The truss design shall be submitted to Michael R. Waldbieser Engineering & Consulting, Inc. for approval prior to fabrication.

C. Truss design loads are as stated on the drawings.

D. Allowable deflections shall be L/360 for total load applied to the truss.

PART 3: EXECUTION

3.1 INSTALLATION

A. Connection of trusses to bearing system shall be as stated on the drawings prepared by Michael R. Waldbieser Engineering & Consulting, Inc.

B. Install all bracing shown on truss shop drawings.

C. All connections for any hip and valley systems shall be complete by the truss mfg.

END OF SECITON

SECTION 07190 - VAPOR BARRIER

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes vapor barrier to be installed under all concrete slabs.

1.2 GENERAL

A. Dampproof all interiors slabs-on-grade with Polyethlene Film.

B. Install between fill material and concrete slab.

C. Fill shall be level.

PART 2: MATERIAL

2.1 POLETHYLENE FILM

A. Slab Underlay Vapor Barrier.

B. Thickness: .006" (6 Mil.)

C. Manufacturer - Visqueen or equal..

PART 3: EXECUTION

3.1 INSTALLATION

A. Lap all ends and edges minimum 6".

B. Make all laps in direction of concrete pour.

C. Seal laps with approved mastic.

D. Cut carefully around all pipes and conduit.

E. Seal cut openings with tape.

F. Repair all punctures before pouring concrete.

END OF SECTION

SECTION 07200 - INSULATION

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes installation of all insulation shown on the drawings.

1.2 SUBMITTALS

A. Submit manufacturer's product literature and installation instructions for type of insulation required.

B. Submit data showing physical properties of fasteners to be incorporated with this work, including test data from an independent testing laboratory showing pull-out resistance.

1.3 QUALITY ASSURANCE

A. Installer: To be a regularly engaged in the installation of insulation work specified and shall have have proper experience to install the work specified.

B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of the insulation specified.

PART 2: MATERIAL

2.1 ROOF INSULATION

A. The roof insulation shall be Firestone Polyiso of the thickness stated on the drawings.

B. Thermal resistance: LTTR = 23.6 for 4" total thickness.

2.2 FIBERGLASS BATTEN WALL INSULATION

A. Where specified, fiberglass wall insulation shall be of the thickness called for and shall be manufactured by Owens-Corning, or equal.

B. Where called for, the insulation shall have an integral vapor barrier.

2.3 FOUNDATION PERIMENTER INSULATION

A. Foundation perimeter insulation shall be Owens Corning Foamular 250 Insulation, or equal, of the thickness stated on the drawings.

B. Thermal Resistance: R=5.0 per inch thickness, conditioned.

2.4 MASONRY FILL INSULATION

A. The exterior concrete masonry wall insulation shall be Cor-Fill 500 as manufactured by Tailored Chemical Products, Inc., or equal.

B. Product to be installed by injection into all open cores or through drilled holes in mortar joints. All holes to be repaired to appear as before drilling.

C. Thermal Resistance: R=20 for 12 inch block/60 lbs density.
R=14.2 for 8 inch block/60 lbs density.

PART 3: EXECUTION

3.1 INSTALLATION

All products to be installed in strict accordance with the manufacturer's installation specifications.

3.2 TRAINING

Where special training is required, the installer shall be trained in accordance with the manufacturer's training program and shall be experience in the installation of such work.

END OF SECITON

SECTION 07600 - SHEET METAL FLASHING & SOFFITS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

This section shall include all materials, equipment, and labor necessary for the installation of sheet metal flashings on this project.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's product data, installation instructions an general recommendations for each specified sheet material and fabricated products.

B. Submit 8" square samples of specified sheet materials to be exposed as finished surfaces.

1.3 JOB CONDITIONS

A. Coordinate work of this section with interfacing and adjoining work for proper sequencing of each installation. Ensure best possible weather resistance and durability of work and protection of materials and finishes.

PART 2: PRODUCTS

2.1 SHEET METAL FLASHING MATERIALS

A. Full vented prefinished painted aluminum soffit panels.
Solid prefinished painted aluminum soffit panels at locations shown on the drawings.
Color selected by Owner.
Provide wood blocking or hat channels as required by the mfg. for installation.

B. Fasteners: Same metal as sheet metal flashing material or, other non-corrosive metal as recommended by sheet mfg.

C. Metal Accessories: Provide sheet metal clips, straps, anchor devices and similar accessory units as required for installation of work, matching or compatible with material being installed, non-corrosive, size and gage required for performance.

2.3 FABRICATED UNITS

A. General Metal Fabrication:

1. Shop-fabricate work to greatest extent possible. Comply with details shown, and with applicable requirements of SMACNA "Architectural Sheet Metal Manual" and other recognized industry practices. Fabricate and waterproof and weather-resistant performance; with expansion provision for running work, sufficient to permanently prevent leakage damage or deterioration of the work.

2. Form work to fit substrates. Comply with material mfg. instructions and recommendations for forming material. Form exposed sheet metal work without excessive oil-canning, buckling and tool marks, true to line and levels indicated, with exposed edges folded back to form hems.

B. Seams: Fabricate non-moving seams in sheet metal with flat-lock seams.

C. Expansion Provisions: Where lapped or bayonet-type expansion provisions in work cannot be used, or would not be sufficiently water / weatherproof, form expansion joints of intermeshing hooked flanges, not less than 1" deep, filled with mastic sealant (concealed within joint).

D. Sealant Joints: Where movable, non-expansive type joints are indicated or required for proper performance of work, form metal to provide for proper installation of elastomeric sealant in compliance with SMACNA standards.

E. Separations: Provide for separation of metal from non-compatible metal or corrosive substrates by coating concealed surfaces at locations of contact, with bituminous coating or other permanent separation as recommended by manufacturer/fabricator.

F. Counter-flashing: Form top edge of wall counter-flashing to lock into mortar joint. Bend sections in middle to provide spring action against the wall.

G. Preformed Vent Flashing: Provide preformed flexible cylindrical pipe boots at each pipe penetration of pitched roofs in the correct size. Base of unit shall be galv. steel.

PART 3: EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. General: Except as otherwise indicated, comply with mfg.'s installation instructions and recommendations, and with SMACNA "Architectural Sheet Metal Manual". Anchor units of work securely in place by methods indicated, providing for thermal expansion of metal units; conceal fasteners where possible, and set units true to line and level as indicated. Install work with laps, joints and seams which will be permanent watertight and weatherproof.

B. Bed flanges of work in a thick coat of bituminous roofing cement where required for waterproof performance.

C. Saw-cut new counter-flashing reglets at least 1 1/2" deep where new counter-flashing is indicated.

D. Install counter-flashing in reglets either by snap-in seal arrangement or by wedging in place for anchorage for filling reglet with elastomeric sealant.

3.2 CLEANING AND PROTECTION

A. Clean exposed metal surfaces, removing substances which might cause corrosion of metal or deterioration of finishes.

B. Protection: Protect flashings and sheet metal work during construction, to ensure that work will be without damage and other deterioration, other than natural weathering, at time of substantial completion.

END OF SECTION

SECTION 07900 - JOINT SEALANTS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

This section shall include all materials, equipment, and labor necessary for the installation of joint sealants on the project.

A. Qualified Applicator: Franchised by sealant manufacturer; at least three years experience in similar work with satisfactory results, subject to the Engineers' approval. Install materials using experienced workmen, skilled in this type application, with equipment approved by the manufacturer.

1.2 SUBMITTALS

A. Submit manufacturer's specifications for the compounds; include methods of application and proposed color for each type of installation.
B. Submit color samples.

1.3 ENVIRONMENTAL REQUIREMENTS

A. Acceptable temperature range for sealant Application: 65 deg. to 90 deg.
B. Stop exterior sealant work during inclement weather and do not restart until surfaces adjacent to the joint to be sealed are perfectly dry.

PART 2: PRODUCTS

2.1 MATERIALS

A. Multi-Component Urethane Sealant, for non-sag applications:
    1. Non-modified, air-curing, elastomeric sealant complying with ASTM C 920-86 Type M, Grade NS, Class 25. Select from on of the following manufacturers and products, or equal:
        a. Tremco, Dymeric.
        b. Pecora, Dynatrol II.
        c. Sonneborn Building Products, Sonolastic NP 2.
B. Multi-Component Urethane Sealant, for self-leveling applications:
    1. Complying with Federal Specification TT-S-00227E, Class A, Type 1:
        a. Tremco, THC-900.
        b. Pecora, Urexpan NR-200.
        c. Sonneborn Building Products, Sonolastic SL1.
C. Acrylic Latex Sealant:
    1. Complying with ASTM C-834-86.
        a. Tremco, Acrylic Latex 834.
        b. Pecora, AC-20.
        c. Sonneborn Building Products, Sonolac.
D. Sanitary Silicone Rubber., one part, moisture cure.
    1. Complying with ASTM C-920, Type S, NX, Class 25.
        a. Dow Corning, 786 Mildew Resistant Silicone Sealant.
        b. General Electric Company, Sanitary 1700 Sealant.
        c. Rhone-Poulenc Inc., Rhodorsil 6B.

E. Primer: As recommended by manufacturer for the use intended.
F. Primer (Silicone): As recommended by sealant manufacturer.
G. Backer Rod: Expanded, closed cell polyethylene; as recommended by sealant manufacturer.
H. Bond-Breaker: Polyethylene tape; as recommended by sealant manufacturer.

PART 3: EXECUTION

3.1 CONDITION OF SURFACES

A. Examine all surfaces which are to receive this work for any conditions detrimental to the proper or timely completion of this work. Do not proceed with this work until such conditions have been corrected and are acceptable.

3.2 JOINT DESIGN

A. Sealant joints shall conform to the following criteria.
    1. No joint less than 1/4 inch in width or depth.
    2. Joints up to 1/2 inch in width shall have equal depth.
    3. Joints over 1/2 inch in width shall have depth equal to 1/2 the width.
    4. Control joints in concrete slabs, 1/8 inch width.
B. Provide backer rod as specified to limit depth of joints. In shallow joints where use of backer rod is restricted, provide bond-breaker tape.

3.3 APPLICATION

A. Joints and spaces to be sealed shall be clean, dry and free from dust, loose mortar and other foreign materials.
B. Clean ferrous metals of all rust, mill scale and coatings by wire brush, grinding or sandblasting. Remove oils and grease with solvent-based materials such as Zylol, toluol or methyl ketone. Do not use soap, detergent or water soluble cleaners.
C. Mask adjacent surfaces with masking tape prior to priming and sealing. Remove tape after joint has been tooled.
D. After joints have been completely filled, they shall be neatly tooled to a slightly concave surface.
E. Immediately clean adjacent materials which have been soiled; leave work in a neat, clean condition.
F. Repair and correct defects in work due to faulty materials, methods of workmanship. Make good any adjacent work damaged by such defects.

3.4 DEFLECTIVE WORK.

A. The following types of failure will be adjudged defective work: breakage, cracking, crumbling, melting, shrinking, running, hardening or staining adjacent surfaces, adhesive failure and cohesive failure. Correct defective work.

3.5 COLOR.

A. Sealant, Generally: Color of the adjacent material which lies in the same plane as the sealant. Sanitary silicone sealant shall be white.

3.6 APPLICATION.

A. Use urethane type sealants as exterior where sealant is indicated or if not indicated, as required to provide a weather-tight joint between dissimilar materials.
B. Use acrylic latex type sealant at interior locations where indicated or required to provide a seal between dissimilar materials.
C. Use sanitary silicone sealant at interior locations between plumbing fixtures and building construction and between casework and wall construction.
D. Use one-part nonsag urethane sealant or multi-part nonsag urethane sealant (NT) for expansion and control joints in masonry, other than stone.

END OF SECTION

SECTION 08110 - HOLLOW METAL STEEL DOORS & FRAMES

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK INCLUDED

A. Furnish all items shown on drawings and as specified including, but not limited to, the following.
   1. Steel Doors.
   2. Steel Door Frames.
   3. Steel Sidelight, Borrowed lite & transom frames.

1.2 REFERENCES

A. Steel Doors and Frames must meet the following standards:
   1. Door and Hardware Preparation ANSI 115.
   2. Life Safety Codes NFPA-101 (Latest Edition).
   3. Fire Doors and Windows NFPA-80 (Latest Edition).
   4. Steel Door Institute ANSI/SDI-100 (Latest Edition).

1.3 QUALITY ASSURANCE

A. Provide Steel Doors and Frames manufactured by a single firm specializing in the production of this type of work.
B. Provide Steel Doors and Frames complying with the Steel Door Institute recommended specifications for Standard Steel Doors and Frames ANSI/SDI 100 (Latest Edition), and as herein specified.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURES

A. Doors to be steel flush leafs by "Republic Builders Products, Ceco Door Products, or equal.

2.2 HARDWARE LOCATIONS AND GENERAL REINFORCEMENTS

A. Locate hardware on doors and frames in accordance with the manufacturers standard location.
B. Hardware reinforcements to be in accordance with minimum standard gages as listed in SDI-100.

2.3 STEEL DOORS

A. Material - Exterior Doors
   1. Face Sheets are to be made of commercial quality 18 gage hot dipped A60 zinc coated steel that complies with ASTM A525.
   2. Vertical edges shall join the face sheets by manufacturers standard weld pattern extending the full height of the door. Welds are to be ground, filled and dressed smooth to make invisible and provide a smooth flush surface.
   3. Hinge reinforcement shall be not less than 8 gage.

4. Reinforce tops and bottoms of all doors with a continuous steel channel not less than 16 gage, extending the full width of the door and welded to the face sheet.

5. Door Cores - doors are to be completely filled with rigid polyurethane or polystyrene core chemically bonded to all interior surfaces.

B. Materials - Interior Doors
1. Face sheets are to be made of commercial quality 18 gage cold rolled steel that complies with ASTM A366 or 620.
2. Vertical edges shall be mechanically interlocked with a hairline edge scam.
3. Hinge reinforcement shall be not less than 8 gage.
4. Reinforce tops and bottoms of all doors with continuous steel channel not less than 16 gage, extending the full width of the door and welded to the face sheet.
5. Door Cores - Doors shall have a one piece resinimpregnated honeycomb core with sanded edges securely bonded to both face sheets.

2.4 STEEL FRAMES

A. Materials for all exterior frames.
1. Shall be 14 gage hot dipped A60 zinc coated steel that complies with ASTM designation A525.
2. All frames are to be assembled so that the face miter seam is closed and tight. Corners shall be welded.

B. Materials for all other frames.
1. Shall be 16 gage that complies with ASTM A366 or ASTM A568.
2. Frames to be assembled so that the face miter seam is closed tight. Frames shall be of "knock-down" construction.

C. Anchors.
1. Floor anchors at each jamb.
2. Anchors at masonry walls to be wire type not less than 0.156 inch diameter steel wire.
3. Anchors in stud partitions to be steel of suitable design, not less than 18 gage.
4. Except on weather strip doors, drill stop to receive 3 silencers on a single door frame and 2 silencers on a double door frame.

2.5 PRIME FINISH

A. Doors and frames to be cleaned, chemically treated, and all exposed surfaces receive factory applied coat of rust inhibiting primer.

PART 3: EXECUTION

3.1 INSPECTION

A. The G.C. shall make sure that all dimensions for openings are accurate.
B. The G.C. shall correct all scratches or disfigurements caused by shipping and handling.

3.2 INSTALLATION

A. Install doors per SDI-105 "Recommended Erection Instructions for steel Frames" and SDI-110 "Standard Steel Door and Frame for modular masonry construction.

3.3 ADJUST AND CLEAN

A. Check and re-adjust operating finish hardware items in hollow metal work just prior to final inspection. Leave work in complete and proper condition.
B. Immediately after erection, sand smooth any damaged areas of primer paint and touch up with compatible primer.

END OF SECITON

SECTION 08211 – PRE-FINISHED SOLID WOOD INTERIOR DOORS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 WORK INCLUDED

A. Furnish all items shown on drawings and as specified including, but not limited to, the following pre-finished solid wood interior doors.
B. Standards for manufacturing, machining, finishing, and installation of wood doors unless more specifically described under another section.

1.2 RELATED WORK IN OTHER SECTIONS

A. Section 06200: Carpentry
B. Section 08100: Hollow Metal Frames
C. Section 08700: Finish Hardware
D. Section 08800: Glass & Glazing

1.3 QUALITY ASSURANCES

A. Provide doors meeting or exceeding the minimum standards as set forth by the following organizations unless standards are modified or exceeded by this specification.

1. WDMA IS 1A-Window and Door Manufacturers Association
2. National Fire Protection Association (NFPA).

B. All doors shall be the product of the same manufacturer to insure uniformity of quality and appearance throughout the project.

C. Fire doors shall bear labels approved by Underwriters Laboratories, Inc or Intertek Testing (WHI). Any discrepancies between the architectural drawings and the procedures and limitations as set forth by the testing agencies shall be brought to the architect's attention.

D. Provide each fire rated door with a label permanently attached to either the hinge stile or to the top rail, showing testing agency approval for classification scheduled.

E. The top of each door shall bear a label from the manufacturer indicating the door construction, face veneer species, cut and grade. If the doors are factory finished the label shall also have the finishing information.

F. The Door Manufacturer shall provide a letter, signed by an authorized company representative, to the Architect stating that the doors have been manufactured in compliance with this specification.

1.4 SUBMITTALS

A. Shop Drawings
Submit schedules and elevations indicating door sizes, construction, swing, label, undercut, and applicable hardware locations.

Dimensions and detail openings for glass lites, louvers, and grilles.

B. Samples
If doors are to be factory finished, manufacturer shall submit veneer samples of specified veneer with their standard finish colors at architect's request, or a color sample from the architect will be sent to the manufacturer for duplication. Samples are to be submitted representing the color selected on veneer typical of grain patterns and coloration for the specified specie and cut.

C. Product Information
Submit manufacturer's product description showing compliance with specifications, along with finishing instructions, installation instructions, and any general recommendations manufacturer may have for the care and maintenance of each door type.

1.5 COORDINATION

Contractor shall be responsible for coordination and acquiring of all necessary information from hardware and metal frame manufacturers. Door manufacturer shall be responsible for coordinating all necessary information received by Contractor from hardware and metal frame manufacturers, in order that doors shall be properly prepared to receive hinges and hardware. Contractor shall provide his supplier with two copies of approved frame schedule, two copies of hardware schedule, and all necessary hardware templates. All the above information shall be in the possession of door supplier 120 days prior to desired delivery date of doors.

1.6 DELIVERY, SOTRAGE, AND HANDLING

A. No doors shall be delivered to the building until weatherproof storage space is available. Store doors in a space having controlled temperature and humidity range between 30 and 60 percent. Stack doors flat and off the floor, supported to prevent warpage. Protect doors from damage and direct exposure to sunlight.

B. Factory finished doors shall be individually wrapped in polybags to protect the finish from damage by contact with other doors.

C. Do not walk or place other material on top of stacked doors. Do not drag doors across one another.

D. Contractor shall use all means necessary to protect doors from damage prior to, during, and after installation. All damaged doors shall be repaired or replaced by the contractor at no cost to the owner.

E. Doors shall be palletized at factory in stacks of no more than 30 doors per pallet. Door edges shall be protected with heavy corner guards.

1.7 WARRANTY

A. All work in this Section shall be warranted by a FULL DOOR WARRANTY (from the date of installation) against defect in materials and workmanship, including the following:
   1. Delamination in any degree.
   2. Warp or twist of ¼" or more in any 3'6" x 7'0" section of a door.
   3. Telegraphing of any part of core assembly through face to cause surface variation of 1/100" or more in a 3" span.
   4. Any defect which may, in any way, impair or affect performance of the door for the purpose which it is intended. Replacement under this warranty shall include hanging, installation of hardware, and finishing.

B. Periods of warranty after date or installation:
   1. Interior solid core and mineral core Life of original installation.

C. Doors must be stored, finished, hung and maintained per manufacturers recommendations set forth in their Full Door Warranty.

PART 2: PRODUCTS

2.1 MANUFACTURERS

Listed manufacturers are believed to conform to the criteria stated for material quality standards, function and appearance. Manufacturers are still subject to meeting the requirements for 5-ply hot-pressed (cold-pressed will not be accepted) door construction procedures and warranties set forth in this specification. Provide products by one of the following:

1. Marshfield
2. Eggers Hardwood Products Corporation
3. Oshkosh Architectural Door Company
4. Mohawk

2.2 MATERIAL AND COMPONENTS

All stile and rail dimensions given are minimum sizes allowed after trimming to book size or factory prefitting.

A. Cores

Particleboard Core -

Shall conform to ANSI A208.1 LD-2 32lb. density core. Stiles shall be l " minimum laminated hardwood or structural composite lumber (SCL) veneered over with veneer matching face veneer. Rails will be l l/8" minimum mill option hardwood or structural composite lumber (SCL). Stiles and rails shall be securely bonded to the core then abrasively planed as an assembly before veneering.

Mineral Core -

Shall be asbestos free, noncombustible mineral composite with a minimum of 28 pounds per cubic foot density when testing in accordance with ASTM C303-82, with 10% maximum absorption by weight with core in equilibrium at 90% relative humidity and 70 degrees

Fahrenheit. Stiles and rails shall be manufacturers standard for specified label. Stile shall be reinforced to receive full mortise hinges. No salt treated components shall be used.

B. Faces and Crossbands

When veneer for transparent or opaque finish is specified, doors shall be 5 ply, made up of 2 face veneers and crossbands, all securely bonded to the core by the hot-press method in one operation, utilizing Type I water proof adhesive. The cold pressing of 2 or 3ply door skins to the core will not be accepted. Face veneers shall have minimum thickness of 1/50 after factory sanding and the individual pieces of veneer forming the face must be edge glued together. Crossbands shall extend the full width of the core assembly. When pairs of doors are scheduled for transparent finish doors shall be pair matched with a continuous grain pattern. When doors are scheduled with transom panels and transparent finish door and transom shall be matched and produced from a continuous sheet of veneer. Bottom rail of transom panel shall extend full width and be same specie as face except for birch, which may have a maple or beech rail.

1. Face veneers shall be of specie, cut and grade specified. Quality shall be governed by industry standards as set forth by ANSI/WDMA IS.1A Series.

   a) Veneer Grade: "A" Grade

   b) Veneer Species: Oak

   c) Veneer Cut: Plain Sliced

   d) Veneer Match: Book matched

   e) Assembly of Veneer on door face: Running Match

2. Cross banding shall be thoroughly dried l/l6 thick hardwood or engineered wood product extending full width and height of door with grain at right angles to face.

3. Face veneer and crossband shall be pressed to the core in a hot-press with Type I water-proof glue.

C. View windows non-labeled doors:

1. Furnish manufactures standard flush wood glass stops to be same species as face veneer for transparent doors with the exception of Birch doors which will have hard maple or beech.

2.3 LABELED FLUSH DOORS 45, 60, AND 90 MINUTE RATED UL10-C POSITIVE PRESSURE CATEGORY A.

A. Doors shall be manufactured by the previously specified manufacturers and subject to the requirements of the specifications hereinafter.

B. Mineral core flush veneered doors, 5-ply shall be made up of face veneers, crossbanding and a core unit all securely bonded together utilizing Type I water-proof adhesive.

Manufacture doors where temperature and humidity controls will insure a state of equilibrium between all component parts of doors at all times.

C. Face Veneer: Same as 2.2-B-1

D. Crossbanding: Same as 2.2-B-2 and no salt treating allowed.

E. Core Unit: Manufacturer's noncombustible mineral, monolithic, or in sections tightly fitted and glued. The density shall be minimum 28 lbs. per cubic foot (nominal).

F. Rails: Top 15/16", bottom 1-7/8" rail (one of two piece) of flame resistant material salt free. Securely glue all rails to core.

G. Stiles: Manufacturers standard for rating listed.
Stiles shall be bonded to the core and be salt free. Drill 5/32 pilot holes for all hinge screws at the factory prior to shipment for "B" and "C" label fire doors. Stiles must meet the following performance criteria:

1. Split Resistance: Average of ten test samples shall be not less than 800 load pounds when tested in accordance with "Test Method to Determine Split Resistance of Hinge Edges of Composite Type Fire Doors".

2. Direct Screw Withdrawal: Average of ten test samples shall be not less than 650 load pounds when tested for direct screw withdrawal in accordance with ASTM D-1037; using a No. 12 x 1 ¼" steel thread-to-the-head wood screw of the cadmium plated or rust-resistant type.

3. Cycle/Slam: 200,000 cycles with no loose hinge screws or other visible signs of failure when tested in accordance with the requirements of ANSI A151.1, Section 2.5 (Note: Specific data regarding WHI listing features and mechanical test results shall be made available by the manufacturer upon request.)

H. Blocking: All 45, 60, and 90 min. fire doors shall be supplied with salt free non-combustible internal solid blocking. Blocking shall be arranged in the door so that surface mounted hardware such as but not limited to closers, exit device, etc. May be secured to the door without a need for through bolts. A lock block, minimum size 5 x 10 shall be supplied for each bored, mortised or unit lock scheduled.

I. Metal vision frames for door lites. Frames shall equal, UL or Intertek approved.
Metal vision frames to be primed for field painting

J. Door manufacturer shall furnish metal edges only on pairs of fire doors with two surface mounted vertical rod exit devices. All other pairs will be furnished with metal edges and overlapping astragal.
Metal edges and astragals to be primed for field painting.

K. Labeled doors shall be manufactured to the required size so as to provide proper clearances without field trimming. This procedure shall be followed so as to assure the full thickness of the edge bands.

L. Doors shall be suitable for hanging on full mortised butt hinges using No. 12 x 1 ¼" steel threaded-to-the-head wood screws of the cadmium plated or rust resistant type. Coordinate with Hardware Section 08700 and 06200 for proper screws and installation. Half-surface hinges are not acceptable.

PART 3: EXECUTION

3.1 FABRICATION

A. Fabricate all wood doors in strict accordance with the referenced standards specified herein.

3.2 MACHINING AND FITTING

All wood doors shall be machined by the manufacturer for cutouts, hinges, locks and all hardware requiring routing and mortising. Any required rabbeting to properly hang doors will be performed by the manufacturer prior to finishing. Doors shall be sized to allow 1/8" clearance at top and each side, and ¾" at bottom (unless specified otherwise.) Factory drilling of pilot holes is not required except for "B" & "C" label fire doors at mortise hinge locations.

3.3 INSTALLATION OF HARDWARE

A. Contractor shall install hardware according to approved hardware schedule for proper locations.

B. Install with full-threaded wood screws furnished by hardware manufacturer.

C. Drill proper size pilot hole for all screws. (Full mortise hinges require 5/32" pilot holes.)

D. Securely anchor hardware in correct position and alignment.

E. Adjust hardware and door for proper function and smooth operation, proper latching, without force or excessive clearance.

3.4 INSTALLATION OF FIRE DOORS

Fire rated doors shall be installed in accordance with the requirements of the labeling agency and NFPA #80 and #101.

3.5 FACTORY FINISHING

Transparent Finish -
WDMA system TR6 catalyzed polyurethane finish for open grain finish. The sheen shall be satin of semi-gloss. Stain, if required, to be selected from manufacturers standard colors or custom matched to Architects sample. Doors to be individually enclosed in a polybag.

3.6 FACTORY GLAZING

3.7

All doors with vision kits to be factory glazed.

END OF SECITON

SECTION 08600 - EXTERIOR WINDOWS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes providing and installation of all exterior windows and hardware on the project.

1.2 SUBMITTALS

A. Submit manufacturer's product literature and installation instructions for type of exterior windows required.

B. Submit data showing physical properties of the exterior windows along with the hardware and installation instructions.

1.3 QUALITY ASSURANCE

A. Installer: To be a regularly engaged in the installation of window units specified and shall have proper experience to install the work specified.

B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of window units specified.

PART 2: MATERIAL

2.1 MATERIALS

A. Window units shall be as stated on the drawings.

PART 3: EXECUTION

3.1 INSTALLATION

All products to be installed in strict accordance with the manufacturer's installation specifications. Where brick or concrete block is laid against an exterior window, back-up rods of thickness required by the manufacturer of the windows shall be used to obtain clearances around window unit. In load bearing wood construction, clearances shall be 1/8” on sides, 1/4 at head, and 3/8” at sill.

3.2 TRAINING

Where special training is required, the installer shall be trained in accordance with the manufacturer's training program and shall be experienced in the installation of such work.

END OF SECTION

SECTION 08710 - DOOR HARDWARE

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all hardware as scheduled on the drawings and in this specification for a complete job. Provide additional hardware as required and not necessarily shown on the drawings to have a complete and operating job.

PART 2: PRODUCTS

All new hardware shall be Grade 1.
Match existing hardware style and function as indicated on the drawings.

PART 3: EXECUTION

3.1 INSTALLATION

Install all materials in strict accordance with the mfg. recommendations.

END OF SECITON

SECTION 08800 - GLASS & GLAZING

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish and install all plastic and glass and all glazing accessories indicated on the drawings and specified herein.

The sizes of all glass shall be verified by measurements taken at the building.

PART 2: MATERIALS

2.1 TYPE OF GLASS

A. Insulating Glass: All insulating glass shall be units consisting of two lights of glass, Separated by a steel spacer filled with moisture absorbing desiccate. The units shall be hermetically sealed with a primary butyl rubber sealant a minimum of 1/4" wide on the spacer bearing surfaces with a secondary butyl rubber sealant completely covering the unit's edge. All four unit edges are to be maintained under compression by an edge protecting stainless steel channel. All such units shall carry a 20-year warranty and be glazed in accordance with manufacturers installation and Glazing Recommendations.

Type of glass and thickness of units shall be indicated on drawings.

Quality of glass for fabricating all above shall meet requirements of Fed. Spec. DD-G-451C.

2.2 ACCESSORIES

Furnish all required accessory and specialty items required to complete the glass installation such as shims, setting blocks, glazing beads. All such items shall be vinyl or neoprene.

A. Glazing Compound: Conforming to Fed. Spec. TT-P-781a, Type I, color to match adjoining finish.

B. Glazing Tape: Synthetic butyl rubber base reinforced with nylon fiber.

C. Glazing Channels: Neoprene extruded sections.

D. Gaskets: Neoprene material - ASTM C-542-65T.

Manufacturers shall be -Dicks-Armstrong Pontius, Concord, Pecora, Plastic Products, T.H. Maloney Co., Pawling Rubber Co., or approved equal.

2.3 SAMPLES

Provide one 12" x 12" samples of each type of glass to be used to the Engineer for approval.

PART 3: INSTALLATION

All glass shall be set by skilled glazers in strict accordance with the Flat Glass Jobbers Association Glazing Manual and frame manufacturer's recommendations.

All windows to be inside, bead glazed. Prime door rabbets before setting glass. Furnish all glazing clips, setting blocks and accessories. Metal glazing beads to be provided by frame manufacturer.

Remove and reset glazing beads to avoid marking or defacing of rebate, bead or setting screws. See that unit is clean and dry before starting work. Do not glaze when ambient temperature is below 40 degrees F.

Use plastic or Neoprene setting blocks at 1/4 points of glass or as required by manufacturer for all large sheets. Actual size of glass for installation must be measured at job, and contractor shall assume responsibility for same.

Apply thin layer of compound to rebate, set glass in compound, pressing until even bed is secured. Run layer of face compound, apply beads or stops and remove excess. Bed glass in compound so space between glass and adjoining metal is well filled and neatly tooled.

All interior glass panels in metal frames shall be installed, using either glazing tape or glazing pound.

Installation of glass with neoprene glazing gaskets shall be in accordance with manufacturers printed directions. All corners and joints of gaskets shall be injection molded and each corner shall incorporate the Secondary Lip Seal to provide water tightness. Filler strip shall be job-site molded and shall be 1/4" longer than gasket length to allow for installation of strip under compression. Gaskets shall carry the manufacturers five year guarantee.

3.1 COMPLETION OF WORK

Remove all rubbish and surplus materials resulting from this work.

3.2 CERTIFICATION

Labeling of glass shall be as directed by all enforceable codes.

3.3 CLEANING

At completion of work, the contractor shall carefully remove all excess glazing compound and point up any defects in his work, and shall have glass washed both sides to the satisfaction of the Engineers.

END OF SECITON

SECTION 09250 - GYPSUM WALLBOARD SYSTEMS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish labor, materials, equipment special tools, supervision and services to complete Gypsum Wallboard Systems indicated, noted, and detailed on drawings and specified herein, including wallboard and accessories.

1.2 RELATED WORK SPECIFIED ELSEWERE

Section 8110 Hollow Metal Frames
Section 9900 Painting

1.3 INDUSTRY STANDARDS

A. Publications of the following institutes, associations, societies, and agencies are referred to in this Section.
   1. American Society for Testing and Materials, ASTM.
   2. Underwriters' Laboratories, Inc., UL.
   3. Federal Specifications, FS.

1.4 PRODUCT HANDLING

A. Gypsum Wallboard materials shall be delivered and stored to prevent damage.
   1. Storage area shall be dry, weather-tight, and well ventilated.

1.5 PRODUCT HANDLING

Uniform temperature in the range of 55 degrees to 70 degrees shall be maintained during the installation and finishing of Gypsum Wallboard Systems.

1.6 QUALITY ASSURANCE

A. Acceptable Manufacturer's and Products.
   1. United States Gypsum Company.
   2. National Gypsum Company.
   3. Georgia-Pacific Gypsum Company.

PART 2: PRODUCTS

2.1 MATERIALS

A. Materials shall conform to the following requirements of the 2006 International Building Code as adopted by the State of Indiana.

B. Gypsum Wallboard, unless otherwise specified shall be the following types, shall be:
   1. Regular Board, taper edge, furnished 5/8" thick.
   2. Fire Rated Board, taper edge, furnished 5/8" thick.
   3. Moisture Resistant Board, taper edge furnished 5/8" thick.
   4. Wallboard shall be thickness indicated furnished in stock widths and stock lengths.

C. Accessories, including corner beads, casing beads and trim, shall be furnished by the wallboard manufacturer as standard for the installed systems. Corner beads shall be screwed to wall, no crimp type.

D. Fasteners shall be Type S, Bulge Head wallboard screws at lengths required by mfg. Nails shall not be used.

2.2 EXAMINATION

A. Examine areas that are to receive drywall application.
   1. Check alignment of supports, spacing, size and report any unsatisfactory conditions to the Engineer. Do not proceed with drywall application until conditions have been corrected.

B. Wallboard system shall be fastened to steel framing using power driven screws.
   1. Screws shall be spaced not less than 3/8" from edges and ends of wallboard, and shall be spaced 8" o.c. at joints and field.
   2. Joints in wallboard shall occur only at stud locations

PART 3: EXECUTION

3.1 INSTALLATION

A. Drywall systems shall be complete, including supports, wallboard, and taping and spackling joints.

B. Floor and ceiling tracks shall be channel shape cold formed of galvanized sheet steel of sufficient width to receive studs.

C. Studs shall be spaced as shown on the drawings.

D. Wallboard shall be taper edge boards installed with long dimension vertical. Install ceiling first.
   1. Fire Rated Boards shall be used for all walls indicated on the drawings as smoke or fire walls or as otherwise noted on the drawings.
   2. Moisture Resistant Wallboard shall be used in damp or wet areas.
   3. Moisture resistant wallboard shall be used for all walls to receive ceramic tile.

E. Provide corner at all outside corners, heads of unframed openings and other unprotected outside corners. Crimp type of metal corners shall not be used unless screwed also.

3.2 JOINT TREATMENT

A. All joints and internal corners shall be finished with joint tape and spackle as recommended by the wallboard manufacturer.
   1. Apply joint compound sufficiently thick to hide board surface at angles and joints. Cover nail heads and depressions with compound.
   2. Apply tape to angles and joints, squeeze out excess compound, and cover tape with compound.

   When first coat has thoroughly dried, apply second coat and taper beyond edges of first coat. Apply thin-finish coat of compound tapered beyond edges of second coat and sand

to smooth surface, true to a plane.

3.3 CLEANING

Remove soil, stain, caused by installing of drywall materials. Clean and properly prepare drywall surfaces to receive finish, as specified.

END OF SECITON

SECTION 09500 - ACOUSTICAL CEILING PANELS

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

The work of this section comprises the furnishing of all labor, materials, equipment, and services necessary for the installation of all acoustical ceilings, complete with suspension systems and related accessories as shown or scheduled on the drawings as specified herein.

1.2 EXPOSED GRID SYSTEM

System consists of suspension system to form an exposed metal grid pattern and lay-in acoustic control panels. All component parts shall be Underwriter's Laboratories, Inc., approved and rated materials for at least a one (1) hour rating where required.

Provide framing required for ceiling access for mechanical equipment. Provide additional hangers required to support ceiling mounted equipment, light fixtures, etc. Provide tie downs to prevent uplift of lay-in units.

1.3 WORK NOT INCLUDED

The following work is specified under other sections of the specifications as noted.

A. Furnishing and installation of all lighting fixtures and wiring to same are specified in Division 16.

B. Furnishing and installation of all ducts, ceiling grilles, return registers in connection with Heating & Air Conditioning are specified in Division 15.

PART 2: MATERIALS

2.1 EXPOSED SUSPENSION SYSTEM

A. Donn DX exposed grid system. White in color.
   1. Hangers: shall be not less than 12 gauge soft annealed galvanized.
   2. Angle moldings shall be nominal 1" x 1" fabricated from cold formed steel.
   3. All steel formed parts shall be electro-galvanized and shall receive a shop applied finish of baked enamel,.

B. Donn AX exposed grid all aluminum system in all Restrooms only. White in color.
   1. Hangers: 3’-0 o.c. as directed by the mfg.
   2. Angle moldings shall be nominal 1" x 1" fabricated from cold formed aluminum.
   3. All aluminum formed parts shall receive a shop applied finish of baked enamel.

2.2 ACOUSTIC PANELS

A. All scheduled areas to have USG Radar ClimaPlus #2410 2’-0” x 2’-0” x 5/8” panels with “SQ” edge.

2.3 SAMPLES

Submit to the Engineer for his approval samples of each type, style and size of acoustical units and suspension systems.

2.4 SHOP DRAWINGS

Provided shop drawings in the form of schedules showings type, style, size and method of suspension to be used in each area receiving acoustical treatment.

PART 3: EXECUTION

3.1 INSTALLATION

The suspension system shall support the ceiling assembly with a maximum deflection of 1/360 of the span. Seismic bracing as required by enforceable building codes. See Section 01000 Governing Codes for list of Codes to be used on this project.

Install hold down clips in all vestibule areas/rooms.

Suspend main beams not more than 48" center to center with hanger wire tied securely and accurately leveled. Extra hangers shall be provided at light fixtures that are supported by grid system and at wall.

Main beams (tees) shall be spaced 4'-0" on center, with cross tees at 2'-0" on center to form a 2'-0" x 2'-0" grid module. Cross tees shall intersect and be positively locked into the main tees. Main tees shall be locked end to end. Tile board hold down clips shall be used as required. Wall moldings shall be securely fastened to walls, with main tees and cross tees resting on wall moldings.

END OF SECTION

SECTION 09650 - VINYL COMPOSITION TILE

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish and install all resilient tile and sheet flooring indicated, noted, detailed or scheduled on the drawings and specified herein, complete with vinyl base.

1.2 DESCRIPTION OF WORK

A. Extent of resilient flooring an accessories is shown on the drawings and in schedules and includes:

1. Vinyl Composition Tile.

2. Rubber Base.

1.3 QUALITY ASSURANCE

A. Manufacturer: Provide each type of resilient flooring and accessories as produced by a single manufacturer, including recommended primers, adhesives, sealants, and leveling compounds.

B. Fire Test Performance: Provide resilient flooring which complies with the following fire test performance criteria as determined by an independent testing laboratory acceptable to authorities having jurisdiction.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's technical data for each type of resilient flooring and accessory.

PART 2: PRODUCTS

2.1 ACCEPTABLE MANUFACTURES

A. Manufacturer: Subject to compliance with requirements, provide products of one of the following, or equal.

1. Vinyl Composition Tile

a. Armstrong Commercial Flooring
b. Congoleum Commercial Flooring

2. Rubber Wall Base

a. Armstrong Commercial Flooring
b. Congoleum Commercial Flooring

2.2 MATERIALS:

A. Provide color and patterns as selected by the Engineer from the manufacturer's standards. Each room in which vinyl composition tile is indicated on the Finish Schedule shall have two colors. 80% of one color and 20% of another color. Pattern selected by Owner.

B. Vinyl Composition Tile Armstrong Raffia Stream with Diamond D10 Technology Coating Size: Imperial Texture 12" x 24" x 1/8".

C. Rubber Wall Base: Provide rubber base complying with ASTM 1861-98. With matching end shops and preformed or molded corner units.

1. Height: 4"
2. Thickness: 1/8"
3. Style: Standard top-set cove, and straight as indicated.
4. Finish: Matte.

D. Divider Strip. Provide and install divider strips at the intersections of flooring and other floor covering as required.

F. Adhesive. Shall be as manufactured and recommended by the tile manufacturer. For above, below or on grade installation.

G. Selection. Color and design selection for flooring and bases shall be made by the Engineer from any or all samples in the manufacturers complete line. Provide one complete box of samples of each tile and base available from which selection will be made.

H. Extra Material. Deliver to the Owner, for use in maintenance work, the following materials, matching that used in the project:

a. Vinyl Tile	2 cartons	each color
b. Vinyl Base	15 lin. ft.	each color, ea size

2.3 PRE-INSTALLATION

Store tiles in room where they are to be installed for 24 hours with temperature maintained at 70 deg.

Clean and inspect sub-floors, patch small holes and uneven surfaces with Latex Under-layment applied with a steel trowel.

Test concrete sub-floors for moisture prior to priming.

PART 3: EXECUTION

3.1 INSTALLATION

All tile shall be laid in strict accordance with manufacturers specifications, and shall be laid and cemented with approved waterproof adhesive. Install tile starting at center axis, scribing and fitting neatly at walls, around columns, under cabinets and around door frames.

Install a divider strip at all doors.

Apply Vinyl Tile Bases Continuous to thoroughly dry walls and cabinet bases. Corners shall be field formed, skive front for internal corners and back for external corners. Heat base when forming and hold to corner until set. Apply mastic and set in place.

3.2 CLEANING

Contractor shall clean the newly installed VCT tile floor with Armstrong S-485 Commercial Floor Cleaner, install one coat of Armstrong S-495 Commercial Floor Sealer, and two coats of Armstrong S-480 Commercial Floor Polish.
All cleaning, sealing, and polishing shall be done per mfg. standards.

Keep all traffic off finished floors after cleaning. Apply Kraft paper with taped joints as protection to cleaned floors as required.

An electric polishing machine shall be used to apply floor polish.

END OF SECITON

SECTION 09680 – CARPET

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Work includes providing and installation of all carpet on the project.

1.2 SUBMITTALS

A. Submit manufacturer's product literature and installation instructions for the specified carpet.

B. Submit samples showing the physical properties of the carpet for approval.

1.3 QUALITY ASSURANCE

A. Installer: To be a regularly engaged in the installation of carpet installation and shall have have proper experience to install the work specified.

B. Manufacturer: The manufacturer shall be a company regularly engaged in the manufacturer of carpet.

PART 2: PRODUCTS

2.1 MATERIALS

A. Carpet: Carpet shall be Patchcraft PDQ Level 2 24"x24" modular carpet tiles.
Latex concrete floors as required.
Provide and install ¼" luan underlayment on all existing construction in existing Building.

B. The final selection of colors will be by the owner.

PART 3: INSTALLATION

3.1 ADHESIVES

Adhesives shall be in accordance with the carpet manufacturer's recommendations and specifications. All products to be installed in strict accordance with the manufacturer's installation specifications.

END OF SECITON

SECTION 09900 - PAINT

PART 1: GENERAL The General Conditions and other Contract Documents are hereby made a part of this Section to the same extent as if written out in full.

1.1 SCOPE

Furnish all labor and materials required to complete all painting, enameling or finishing, indicted, note, detailed or scheduled on the drawings and specified herein. It is the intent of this Section to require the painting subcontractor to finish all materials, equipment and items installed by all trades including Mechanical & Electrical. Painting Subcontractor shall also be responsible for the finishing of areas damaged or disturbed during construction time. Factory finished items will not require additional finishing.

PART 2: PRODUCTS

2.1 MATERIALS

This specification will make no attempt to define the composition or physical properties of the paints to be applied.

All paints shall be the maker's top professional brand, delivered to the site in the original unopened sealed containers.

Materials are specified under type of surface to be finished. Equal products by MAB or Porter may be used.

Vehicles shall be as recommended by the manufacturer of the particular product used. Thinning shall be done only in accordance with the manufacturer's recommendations using only thinning or reducing materials meeting manufacturer's approval.

No claim by the Contractor concerning the unsuitability of any material specified or his inability to produce first-class work with same will be entertained unless such claim is made in writing to the Engineer before the Contract is signed. Deliver materials in original sealed containers.

Painting contractor will submit name of material manufacturer and supply Engineer, through Prime Contractor, with color selection charts, chips, etc., if same are not available in Engineer's office, for all color selection.

No painting to be done until final samples are approved.

2.2 EXTERIOR PAINT SCHEDULE

A. Painted Galvanized Hollow Metal Steel Door and Frame:

1. Hand tool and solvent clean to remove any existing oils or failed primers.
2. Application by brush or roller on remaining items.
3. First Coat: Acrylic Primer
   a. Sherwin Williams Galvite HS
4. Second and Third Coats: Urethane Alkyd Enamel
   a. Sherwin Williams Pro Industrial Urethane Alkyd Enamel

2.3 INTERIOR PAINT SCHEDULE

A. Painted Gypsum Drywall: (All walls and ceilings except as indicated differently)
1. Application by brush and roller.
2. First Coat: Latex Primer
   a. Sherwin Williams ProMar 200 Interior Latex Primer
3. Second and Third Coats: Interior Latex Satin
   a. Sherwin Williams SuperPaint Interior Latex Satin A87-100 Series

B. Painted Gypsum Drywall:
Walls and Ceilings for Restrooms and Storage Rooms
1. Application by brush and roller.
2. First Coat: Latex Primer
   a. Sherwin Williams ProMar 200 Interior Latex Primer
3. Second and Third Coats: Pre-Catalyzed Waterbased Epoxy
   a. Sherwin Williams Pro Industrial Pre-Catalyzed Waterbased Epoxy

C. Painted Hollow Metal Steel Door and Frame:
1. Application by brush and roller.
2. First Coat: Pre-Primed by Mfg.
3. Second and Third Coats: Urethane Alkyd Enamel
   a. Sherwin Williams Pro Industrial Urethane Alkyd Enamel

PART 3: EXECUTION

3.1 FINISH THICKNESS

All painting and finishing work done in this project shall have a minimum total dry film thickness (DFT) of not less than that noted hereinafter, with spreading rate noted.

3.2 WORKMANSHIP

The painting subcontractor shall be responsible for inspecting the work of others prior to the application of any paint or finishing material. If any surface to be finished can- not be put in proper condition for finishing by customary cleaning, sanding and putty operations, the painting subcontractor shall immediately notify the General Contractor in writing; or assume responsibility for and rectify any unsatisfactory finish resulting.

Backpriming will be required for all interior and exterior wood items.

Each coat of paint shall be slightly darker than preceding coat unless otherwise directed by Engineer or Owner. Undercoats shall be tinted similar to finish coats.

Prime coats will not be required on items delivered with prime or shop coats already applied. Touch-up primer or shop coats.

Field painting will not be required on items specified to be completely finished at factory or on aluminum copper, brass, bronze and other non-ferrous metal unless specifically designated.
Interior caulking will be painted.

3.3 STORAGE

All materials used on the job shall be stored in a single place designated by the General Contractor and approved by the Engineer and Owner. The storage area must be kept clean and neat. Floors shall be adequately protected from spillage with proper covers. Any oil rags, waste, etc., must be removed each night after being placed in a covered receptacle during the day.
All precautions against fire must be taken.

3.4 PREPARATION

All surfaces to be painted or finished shall be prepared carefully and inspected before starting the work. No paint or other finish shall be applied until the surfaces are absolutely clean, dry and in proper condition to receive the work.

END OF SECTION

SECTION 15000 - PROVISIONS COMMON TO DIVISIONS 15200, 15300, & 16000

PART 1: GENERAL The provisions of DIVISION 1 and DIVISION 2 preceding these specifications are part of these specifications and this Contractor is to consult them for instructions pertaining to the work under this heading. Note particularly the section on "Proposals ,and Alternates" preceding these specifications.

Where work covered by this specification connects to equipment furnished by others, this Contractor shall check the equipment in the field and will be held responsible for the proper connections to such equipment.

Wherever the phrase "this Contractor" is used in the Article, it refers to the specific contractor involved.

1.1 CONTRACTOR'S NOTE

Immediately upon awarding of the contract, the Contractor must confer with the General Contractor on the building and arrange for proper provisions to be made for the carrying on of all work provided in this specification.

The Contractor shall order all equipment immediately upon signing of contract or receipt of notice to proceed and upon approval of shop drawings. He shall notify the General Contractor of delivery dates and changes therein in writing with copy of written notice to the Engineer. He shall check accesses for equipment to insure doorways, hatches, etc., are sufficient to pass any equipment required. It will be the Contractor's responsibility to prevent any undue delay by reason of delayed or postponed shipment dates.

1.2 OPEN COMPETITION

Where manufacturer's names or trade names are mentioned throughout these Plumbing, Heating, Ventilating & Electrical Specifications, it is done for the express purpose of establishing quality or type of design and not for limiting competition. Other manufacturers' products may be used if, in the opinion of the Engineer, they are equal in all respects and meet the specifications as hereinafter described or shown on the drawings.

1.*3 GUARANTEE*

Each Contractor shall keep his entire portion of the work in repair, so far as defects in workmanship, apparatus, or material or construction are concerned, for one (1) year from date of final certificate, without further charge; but this clause shall not be interpreted as holding him responsible for making good any deterioration due to it's use or abuse.

Any equipment installed by this Contractor which fails to meet performance ratings specified and shown on drawings shall be removed and replaced by equipment which meets all specified requirements without additional cost to the Owner.

1.4 DRAWINGS

This Contractor shall have a set of General, Structural, Mechanical and Electrical drawings on the site, and before installing any of his work he shall see that it does not interfere with clearance required for foundations, finished columns, pilasters, partitions, wall, electrical outlets, etc., and structural members as shown on the General drawings and details. If work is so installed and it develops that interferences occur which have not been called to the Engineer's attention before it's installation, this Contractor, at his own expense, shall make such changes in his work as directed by the Engineer.

1.5 AS CONSTRUCTED DRAWINGS

In order that the Engineer may make corrections to contract drawings, this Contractor shall, during the progress of the work, furnish the Engineer with sketches or prints of drawings marked in colored pencil showing the exact, as installed, location of any concealed work which deviates in any way from the contract drawings.

1.6 SHOP DRAWINGS

Shop drawings shall be submitted as set forth by the GENERAL CONDITIONS.

1.7 OPERATING INSTRUCTIONS

At the termination of this Contractor's work, at the time the building is officially turned over to the Owner, this Contractor shall furnish to the Owner a complete portfolio containing shop drawings, operating instructions, etc., on all equipment furnished by him under this contract. Also, he shall furnish a competent instructor to advise the maintenance personnel as to the proper operation and servicing of any special equipment installed by him.

1.8 LEAK DAMAGE

This Contractor shall be responsible for damage to the work of other Contractors or to the building and it's contents caused by leaks in any of the equipment installed by him or by disconnected pipes, fittings, overflows, freeze-ups, etc.

1.9 CLEANING OF PREMISES

This Contractor shall keep the premises clean of all debris caused by his work at all times, and shall keep his materials stored in such a manner so as not to interfere with the progress of the work of other contractors.

Remove all labels and clean all equipment before final inspection.

1.10 PAINTING

All painting of new work will be done by the General Contractor under his portion of the specification, but the Mechanical and Electrical Contractors shall clean all equipment, pipe, insulation, valves, conduit, boxes, etc., to be painted. All labels except those required by law shall be removed. All loose scale, dust and dirt shall be removed.

1.11 ADJUSTMENTS TO BUILDING CONDITIONS

The location and arrangement of the various parts of the installation are indicated on the drawings. Under no circumstances shall any sizes be decreased or radical changes in any part of the installation be made without the written consent of the Engineer.

When necessary to fit and center with tile, plaster and/or other paneling of wall space, this Contractor must, at his own expense, shift the fixture, grille, or other outlet as directed by the Engineer or his representative. Note that prior to installation of suspended tile ceilings the Mechanical and Electrical Contractors shall coordinate tile pattern with the General Contractor.

1.12 COORDINATION OF CONTRACTORS

All sub-contracts shall be made strictly subject to the approval of the Engineer.

Each bidder shall file with his proposal a list of sub-contractors proposed for the principal parts of the work he proposes to sub-let and receive Engineer's approval before any work is sub-let.

The Owner reserves the right to let other contracts in connection with this work. This Contractor shall extend to other contractors reasonable opportunity for the introduction and the storage of their materials and the execution of their work. This Contractor shall cooperate to the best of his ability with other contractors on the work and shall properly connect and coordinate his work with theirs.

In the interest of a properly coordinated and integrated Electrical System, the Electrical Contractor shall furnish and install all motor circuit wiring and control circuit wiring, together with connection to all electrical Drawings, or described in the Electrical Specifications. This will include standard starters, circuit breakers, cut-outs, separable attachment devices, control stations, etc., as indicated by symbol or description.

Other contractors whose equipment includes electrical components which require electrical accessories and wiring shall furnish the motor starters, controls, etc., which are ordinarily built into their equipment. The other contractors shall also furnish all externally mounted auxiliaries and electrical devices which are special accessories to their equipment. These include pressure, float, temperature, time liquid flow, and limit switches. Also, "T-stat", damper controls, relays, special devices and non-standard attachments.

Electrical services and connections to the other contractors' equipment, insofar as can reasonably be determined beforehand, are shown on the Electrical Drawings and shall be completed by the Electrical Contractor. Deviations, modifications and additions to the Electrical part of the other contractors work as described, however, shall be the responsibility of the other contractors.

Other contractors shall cooperate with the Electrical Contractor on the location of the outlet boxes, switches, controls, etc. They shall also be responsible for the correct locations of all the above items pertaining to their equipment and shall provide for all labor required to mount in place the various items of equipment except for the electrical hook-up.

All electrically operated or electrically controlled equipment which is furnished by other contractors shall have voltage, phase and frequency characteristics to match the system as described in the Electrical Specifications.

1.13 ERECTING

Each contractor shall do all erecting and installing work promptly, and as the work of other contractors progresses in such manner as not to cause delay to other contractors.

All wall sleeves in brick, concrete block, or concrete walls or slabs to receive piping shall be placed by this contractor as the structure is placed in order to avoid necessity for cutting through finished work. No cutting of finished work will be permitted except as approved by the Engineer. Should any cutting of finished work be necessary, all patching shall be done by this Contractor to match adjoining work and original paint finish shall be completed from wall to wall. No patch painting will be accepted.

1.14 WALL CHASES

Each contractor must superintend the building of chases for pipes in walls. He shall furnish the necessary information in this regard to the General and Masonry Contractors at the proper time, and he will be held responsible for the correct size and location of chases, as these may not be shown on the other contractors' drawings.

1.15 CUTTING AND PATCHING

Each contractor shall do all cutting, fitting, and patching necessary to properly install his work unless specifically noted otherwise in these specifications or on the drawings.

1.16 EXCAVATION

Each contractor shall do any and all excavation necessary in the construction of his particular part of the work as included in these specifications, and all sheathing and bracing with proper material which may, in the opinion of the Engineer, be necessary for the protection of foundations and walls of the building, and shall keep all excavations free from water by pumping or bailing during the progress of the work.

All surplus earth shall be removed from the premises or disposed of on the premises as directed by the Engineer and Owner.

Compaction of soil shall be as stated in the Section 2200 Soil Conditions for all trenching.

A line shall be used to mark out trenches for sewers, pipe, etc., and there shall be no variation from the drawings except by order of the Engineer.

1.17 STANDARDIZATION

Insofar as possible, materials shall be standardized, i.e., all steel pipe of one brand, all specialities of one make, all valves of one make, all panels of one make, all switches of one make, all starters of one make, etc.

1.18 MARKING OF VALVES AND EQUIPMENT

Each and every valve which controls supplies to fixtures or appliances which are not directly adjacent and fixable, including all valves in basement, shall be tagged by the contractor whose equipment is served, with a brass tag wired on with No. 10 copper wire

1.19 CODE BANDING

All pipes shall be code-banded or stenciled near each valve and branch take-off from main and at intervals of not less than every 50 feet on long exposed runs. This shall be done after final coat of paint is applied. The owner shall be consulted before applying code banding or stenciling and his code used when applicable.

1.20 ELECTRICAL MOTORS AND WIRING

All electric wiring for heating and ventilating and plumbing equipment will be done under the Electrical Specifications except as otherwise specified. The Electrical Contractor shall furnish combination line starters and push-button stations, unless they are specifically called for in the Mechanical Specifications. The Mechanical Contractor shall be responsible for the procurement of manufacturer's wiring diagrams

which will correlate the equipment to be furnished by the Electrical Contractor with the respective manufacturer's specialties.

The required voltage for each motor is given with each class of equipment. All motors shall conform to applicable NEMA Standards for quiet operation, standard frame size, permissible temperatures rise and suitable enclosure for the service intended.

1.21 CONCRETE

See Sections 3100 Concrete Form Work, Section 3200 Concrete Reinforcement, and Section 3300 Cast-In-Place Concrete for more information on concrete requirements.

1.22 FOUNDATIONS

All motor-driven equipment on basement floor and their accessories shall be installed on concrete foundations 4" high, unless otherwise specified or noted on the drawings. Note that certain foundations will be provided by the General Contractor; however, this Contractor shall furnish him the exact dimensions of the foundation required.

1.23 CLEANING OF PIPING AND DUCTWORK SYSTEMS

Each piping system shall be thoroughly cleaned by flushing out with water prior to turning over to the Owner.

Domestic water systems of plumbing shall be thoroughly flushed out and flushing water wasted to sewer for a period not less than 15 minutes. Mains shall be flushed first by flushing out the furthest branch lines and progressing backwards toward source, flushing each branch line. Valve discs shall be removed before flushing except branch shut-off valve.
Ductwork shall be kept clean as it is erected by vacuuming out or by wiping out dirt, grease and oil. Ductwork systems shall not be used for temporary ventilation unless the Contractor furnishes and maintains filters in all locations as seemed necessary to keep system clean. Filters shall be changed regularly every two weeks in order to keep system clean of construction dirt. Covers shall be placed over inlets and outlets not in temporary use during construction.

ENGINE GENERATOR SPECIFICATION

1. **General**

1.1. **Description of System & Site**

1.1.1. Provide a 130kW standby power system to supply electrical power at 120/208 Volts, 60 Hertz, 3 Phase. The system will utilize generators rated 130 kW. The generator shall consist of a liquid cooled natural gas driven engine, a synchronous AC alternator and system controls with all necessary accessories for a complete operating system, including but not limited to the items as specified hereinafter.

1.1.2. The site is an NEC ordinary location with no specific harsh environment requirements.

1.2. **Requirements of Regulatory Agencies**

1.2.1. An electric generating system, consisting of a prime mover, generator, governor, coupling and all controls, must have been tested, as a complete unit, on a representative engineering prototype model of the equipment to be sold.

1.2.2. The generator set must conform to applicable NFPA requirements.

1.2.3. The generator set must be available with the Underwriters Laboratories listing (UL2200) for a stationary engine generator assembly.

1.2.4. The generator set must be pre-certified to meet EPA federal emission requirements for stationary standby. On-site emission testing & certification will not be acceptable for standby applications.

1.3. **Manufacturer Qualifications**

1.3.1. This system shall be supplied by an original equipment manufacturer (OEM) who has been regularly engaged in the production of engine-alternator sets, automatic transfer switches, and associated controls for a minimum of 25 years, thereby identifying one source of supply and responsibility. Approved suppliers are Generac Industrial Power or an approved equal.

1.3.2. The manufacturer shall have printed literature and brochures describing the standard series specified, not a one of a kind fabrication. Custom designed solutions using site specific PLC programs and site specific schematics are not acceptable.

1.3.3. Manufacturer's authorized service representative shall meet the following criteria:
- 1.3.3.1. Certified, factory trained, industrial generator technicians
- 1.3.3.2. Service support 24/7
- 1.3.3.3. Service location within 200 miles
- 1.3.3.4. Response time of 4 hours
- 1.3.3.5. Service & repair parts in-stock at performance level of 95%

1.4. **Submittals**

1.4.1. Engine Generator specification sheet
1.4.2. Controls specification sheet(s)
1.4.3. Installation / Layout dimensional drawing
1.4.4. Wiring schematic
1.4.5. Sound data
1.4.6. Emission certification
1.4.7. Warranty statement

2. **Engine**

2.1. **Engine Rating and Performance**

2.1.1. The prime mover shall be a liquid cooled, spark-ignited, 4-cycle engine. It will have adequate horsepower to achieve rated kW output.

2.1.2. The engine shall support a 100% load step.

2.1.3. The system shall be sized and sequenced to allow emergency system loads as defined by NEC 700 to be transferred onto the generator(s) within 10 seconds. Non-emergency system loads will be sequenced onto the generator(s) as generator capacity comes on-line.

2.2. **Engine Oil System**

2.2.1. Full pressure lubrication shall be supplied by a positive displacement lube oil pump. The engine shall have a replaceable oil filter(s) with internal bypass and replaceable element(s).

2.3. **Engine Cooling System**

2.3.1. The engine is to be cooled with a unit mounted radiator, fan, water pump, and closed coolant recovery system. The coolant system shall include a coolant fill box which will provide visual means to determine if the system has adequate coolant level. The radiator shall be designed for operation in 122 degrees F, (50 degrees C) ambient temperature.

2.3.2. The engine shall have (a) unit mounted, thermostatically controlled water jacket heater(s) to aid in quick starting. The wattage shall be as recommended by the manufacturer.

2.3.3. Engine coolant and oil drain extensions, equipped with pipe plugs and shut-off valves, must be provided to the outside of the mounting base for cleaner and more convenient engine servicing.

2.3.4. A radiator fan guard must be installed for personnel safety that meets UL and OSHA safety requirements.

2.4. **Engine Starting System**

2.4.1. Starting shall be by a solenoid shift, DC starting system.

2.4.2. The engine's cranking batteries shall be lead acid. The batteries shall be sized per the manufacturer's recommendations. The batteries supplied shall meet NFPA 110 cranking requirements of 90 seconds of total crank time. Battery specifications (type, amp-hour rating, cold cranking amps) to be provided in the submittal.

2.4.3. The genset shall have an engine driven, battery charging alternator with integrated voltage regulation.

2.4.4. The genset shall have an automatic dual rate, float equalize, 10 amp battery charger. The charger must be protected against a reverse polarity connection. The chargers charging current shall be monitored within the generator controller to support remote monitoring and diagnostics. The battery charger is to be factory installed on the generator set. Due to line voltage drop concerns, a battery charger mounted in the transfer switch will be unacceptable.

2.5. **Engine Fuel System**

2.5.1. The engine shall be configured to operate on pipe line grade natural gas.

2.5.2. The engine shall utilize a fuel system inclusive of carburetor, gas regulator, low gas pressure switch, and fuel shut-off solenoid. Generators larger than 80 kW are to include air-fuel-ratio control.

The engines internal fuel connections shall be terminated to the generator frame via an NPT fitting for easy installation

2.6. **Engine Controls**

2.6.1. Engine speed shall be controlled with an integrated isochronous governor function with no change in alternator frequency from no load to full load. Steady state regulation is to be 0.25%.

2.6.2. To support EPA emission requirements, gensets larger than 80 kW will incorporate an active air-fuel-ratio controller. The air-fuel-ratio controller shall be integrated into the generator controller to ensure security of settings and to support monitoring and remote diagnostics. External air-fuel-ratio controllers are not acceptable.

2.6.3. Engine sensors used for monitoring and control are to be conditioned to a 4-20ma signal level to enhance noise immunity.

2.6.4. All engine sensor connections shall be sealed to prevent corrosion and improve reliability.

2.7. **Engine Exhaust & Intake**

2.7.1. The engine exhaust emissions shall meet the EPA emission requirements for stationary emergency power generation.

2.7.2. For generators larger than 80 kW, the engine will incorporate a 3-way catalytic convertor to meet EPA emission requirements.

2.7.3. The manufacturer shall supply its recommended stainless steel, flexible connector to couple the engine exhaust manifold to the exhaust system. A rain cap will terminate the exhaust pipe after the silencer. All components must be properly sized to assure operation without excessive back pressure when installed.

2.7.4. The manufacturer shall supply a critical grade exhaust silencer as standard. For applications with site specific sound requirements (reference section 1.1), the silencer shall be selected to achieve site sound levels.

2.7.5. For gensets in a weather or sound attenuated enclosure, all exhaust piping from the turbo-charger discharge to the silencer shall be thermally wrapped to minimize heat dissipation inside the enclosure.

2.7.6. The engine intake air is to be filtered with engine mounted, replaceable, dry element filters.

3. Alternator

3.1. The alternator shall be the voltage and phase configuration as specified in section 1.1.1.

3.2. The alternator shall be a 4-pole, revolving field, stationary armature, synchronous machine. The excitation system shall utilize a brushless exciter with a three phase full wave rectifier assembly protected against abnormal transient conditions by a surge protector. Photo-sensitive components will not be permitted in the rotating exciter.

3.3. The alternator shall include a permanent magnet generator (PMG) for excitation support. The system shall supply a minimum short circuit support current of 300% of the rating (250% for 50Hz operation) for 10 seconds.

3.4. The alternator shall support 404 skVA with a maximum voltage dip of 35 %.

3.5. Three phase alternators shall be 12 lead, broad range capable of supporting voltage reconnection. Single phase alternators shall be four lead and dedicated voltage designs (600v) shall be six lead. All leads must be

extended into a NEMA 1 connection box for easy termination. A fully rated, isolated neutral connection must be included by the generator set manufacturer.

3.6. The alternator shall use a single, sealed bearing design. The rotor shall be connected to the engine flywheel using flexible drive disks. The stator shall be direct connected to the engine to ensure permanent alignment.

3.7. The alternator shall meet temperature rise standards of UL2200 (120 degrees C). The insulation system material shall be class "H" capable of withstanding 150 degrees C temperature rise.

3.8. The alternator shall be protected against overloads and short circuit conditions by advanced control panel protective functions. The control panel is to provide a time current algorithm that protects the alternator against short circuits. To ensure precision protection and repeatable trip characteristics, these functions must be implemented electronically in the generator control panel -- thermal magnetic breaker implementation are not acceptable.

3.9. An alternator strip heater shall be installed to prevent moisture condensation from forming on the alternator windings. A tropical coating shall also be applied to the alternator windings to provide additional protection against the entrance of moisture.

4. Controls

4.1. The generator control system shall be a fully integrated microprocessor based control system for standby emergency engine generators meeting all requirements of NFPA 110 level 1.

4.2. The generator control system shall be a fully integrated control system enabling remote diagnostics and easy building management integration of all generator functions. The generator controller shall provide integrated and digital control over all generator functions including: bi-fuel control, engine protection, alternator protection, speed governing, voltage regulation and all related generator operations. The generator controller must also provide seamless digital integration with the engine's electronic engine control module (ECM) if so equipped. Generator controller's that utilize separate voltage regulators and speed governors or do not provide seamless integration with the engine management system are considered less desirable.

4.3. Communications shall be supported with building automation via the Modbus protocol without network cards. Optional internet and intranet connectivity shall be available.

4.4. The control system shall provide an environmentally sealed design including encapsulated circuit boards and sealed automotive style plugs for all sensors and circuit board connections. The use of non-encapsulated boards, edge cards, and pc ribbon cable connections are considered unacceptable.

4.5. Circuit boards shall utilize surface mount technology to provide vibration durability. Circuit boards that utilize large capacitors or heat sinks must utilize encapsulation methods to securely support these components.

4.6. A predictive maintenance algorithm that alarms when maintenance is required. The controller shall have the capability to call out to the local servicing dealer when maintenance is required.

4.7. Diagnostic capabilities should include time-stamped event and alarm logs, ability to capture operational parameters during events, simultaneous monitoring of all input or output parameters, callout capabilities, support for multi-channel digital strip chart functionality and .2 msec data logging capabilities.

4.8. In addition to standard NFPA 110 alarms, the application loads should also be protected through instantaneous and steady state protective settings on system voltage, frequency, and power levels.

4.9. The control system shall provide pre-wired customer use I/O: 4 relay outputs (user definable functions), communications support via RS232 and RS485. Additional I/O must be an available option.

4.10. Customer I/O shall be software configurable providing full access to all alarm, event, data logging, and shutdown functionality. In addition, custom ladder logic functionality inside the generator controller shall be supported to provide application support flexibility. The ladder logic function shall have access to all the controller inputs and customer assignable outputs.

4.11. The control panel will display all user pertinent unit parameters including: engine and alternator operating conditions; oil pressure and optional oil temperature; coolant temperature and level alarm; fuel level (where applicable); engine speed; DC battery voltage; run time hours; generator voltages, amps, frequency, kilowatts, and power factor; alarm status and current alarm(s) condition per NFPA 110 level 1.

4.12. Provide an NFPA 110/99 compliant alarm annunciator panel for remote indication. The panel shall have an ALARM switch that when moved to the OFF position silences the audible alarm. A TEST/RESET switch must be included to verify the lights are functional and reset any condition after it has cleared. The annunciator shall be controlled using RS485 communications from the generator controller. Annunciators requiring individual contacts and wires per indication point are not preferred.

4.13. Provide Remote Emergency-Stop - Break glass type

5. **Engine / Alternator Packaging**

5.1. The engine/alternator shall be isolated from the generator frame with rubber isolators. The packaging shall not require the addition of external spring isolators.

5.2. A mainline, thermal magnetic circuit breaker carrying the UL mark shall be factory installed. The breaker shall rated between 100 to 125% of the rated ampacity of the genset.

6. Enclosure

6.1.1. The genset shall be packaged with a standard weather protective enclosure.

6.1.2. The enclosure shall be made of steel with a minimum thickness of 16 gauge. The enclosure is to have hinged, removable doors to allow access to the engine, alternator and control panel. The hinges shall allow for door fit adjustment. Hinges and all exposed fasteners will be stainless steel or Sermagard coated. The use of pop-rivets weakens the paint system and not allowed on external painted surfaces. Each door will have lockable hardware with identical keys.

6.1.3. The enclosure shall be coated with electrostatic applied powder paint, baked and finished to manufacturer's specifications. The color will be manufacturer's standard.

6.1.4. The enclosure shall utilize an upward discharging radiator hood. Due to concerns relative to radiator damage, circulating exhaust, and prevailing winds, equipment without a radiator discharge hood will not be acceptable.

6.1.5. The genset silencer shall be mounted on the discharge hood of the enclosure. Due to architectural concerns, silencers mounted on the top of the generator enclosure are not acceptable. Gensets with silencers mounted inside the main generator compartment are acceptable only if the silencer is thermally wrapped to minimize heat stress on the surrounding components.

7. **Additional project requirements**

7.1. **Factory testing**

7.1.1. Before shipment of the equipment, the engine-generator set shall be tested under rated load for performance and proper functioning of control and interfacing circuits. Tests shall include:

7.1.1.1. Verify voltage & frequency stability.
7.1.1.2. Verify transient voltage & frequency dip response.
7.1.1.3. Load test the generator for 30 minutes.

7.2. **Manuals**

7.2.1. Three (3) sets of owner's manuals specific to the product supplied must accompany delivery of the

equipment. General operating instruction, preventive maintenance, wiring diagrams, schematics and parts exploded views specific to this model must be included.

7.3. **Installation**

7.3.1. Contractor shall install the complete electrical generating system including all external fuel connections in accordance with requirements of NEC, NFPA, and the manufacturer's recommendations as reviewed by the Engineer.

7.4. **Service**

7.4.1. Supplier of the genset and associated items shall have permanent service facilities in this trade area. These facilities shall comprise a permanent force of factory trained service personnel on 24 hour call, experienced in servicing this type of equipment, providing warranty and routine maintenance service to afford the owner maximum protection. Delegation of this service responsibility for any of the equipment listed herein will not be considered fulfillment of these specifications. Service contracts shall also be available.

7.4.2. One year preventative maintenance agreement to include two major (oil & filter change) maintenance trips 6months apart beginning 6 months after startup and commissioning.

7.5. **Warranty**

7.5.1. The standby electric generating system components, complete genset and instrumentation panel shall be warranted by the manufacturer against defective materials and factory workmanship for a period of five (5) years. Such defective parts shall be repaired or replaced at the manufacturer's option, free of charge for parts, labor and travel.

7.5.2. The warranty period shall commence when the standby power system is first placed into service. Multiple warranties for individual components (engine, alternator, controls, etc.) will not be acceptable. Satisfactory warranty documents must be provided. Also, in the judgment of the specifying authority, the manufacturer supplying the warranty for the complete system must have the necessary financial strength and technical expertise with all components supplied to provide adequate warranty support.

7.6. **Startup and Commissioning**

7.6.1. The supplier of the electric generating plant and associated items covered herein shall provide factory trained technicians to checkout the completed installation and to perform an initial startup inspection to include:

7.6.1.1. Ensuring the engine starts (both hot and cold) within the specified time.

7.6.1.2. Verification of engine parameters within specification.

7.6.1.3. Verify no load frequency and voltage, adjusting if required.

7.6.1.4. Test all automatic shutdowns of the engine-generator.

7.6.1.5. Perform a load test of the electric plant, ensuring full load frequency and voltage are within specification by using building load.

7.6. **Training**

7.6.1. Training is to be supplied by the start-up technician for the end-user during commissioning. The training should cover basic generator operation and common generator issues that can be managed by the end-user.

7.6.2. Training is to include manual operation of system.

AUTOMATIC TRANSFER SWTICHES

Basic – Essential ATS Spec

PART 1 GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Specification Section 260548 Vibration and Seismic Controls for Electrical Systems.

C. Specification Section 260 573 Overcurrent Protective Device Coordination Study.

1.2 SUMMARY

A. This Section includes transfer switches rated 600 V and less, including the following:
   1. Automatic transfer switch, 400 amp rated, NEMA 3R Secured, 120/208VAC.
   2. 5 year warranty from date of shipment.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated. Include rated capacities, weights, operating characteristics, furnished specialties, and accessories.

B. Shop Drawings: Dimensioned plans, elevations, sections, and details showing minimum clearances, conductor entry provisions, gutter space, installed features and devices, and material lists for each switch specified.
   1. Single-Line Diagram: Show connections between transfer switch, switch, power sources, and load; and show interlocking provisions for each combined transfer switch.

C. Manufacturer Seismic Qualification Certification: Submit certification that transfer switches accessories, and components will withstand seismic forces defined in Section 260548 “Vibration and Seismic Controls for Electrical Systems”, and per IBC 2012 seismic standards. Include the following:
   1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
      a. The term “withstand” means “the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified”.
   2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
   3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

D. Field quality-control test reports.

E. Certification of compliance with the Buy American Act.

F. Operation and Maintenance Data: For each type of product to include in emergency, operation, and maintenance manuals. In addition to items specified in Section 017823 "Operation and Maintenance Data", include the following:
   1. Features and operating sequences, both automatic and manual.
   2. List of all factory settings of relays; provide relay-setting and calibration instructions, including software, where applicable.

1.4 QUALITY ASSURANCE

A. Comply with the Buy American Act (41 U.S.C. 10).

B. Manufacturer Qualifications: Maintain a service center capable of providing training, parts, and emergency maintenance repairs within a response period of less than eight hours from time of notification.

C. Comply with UL 1008 unless requirements of these Specifications are stricter.

D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Comply with NEMA ICS 1.

F. Comply with NFPA 70.

G. Comply with NFPA 99.

H. Comply with NFPA 110.

I. UL 891 Suitable for use as service entrance equipment.

1.5 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and form work requirements are specified in Section 033000 "Cast-in-Place Concrete".

1.6 PROJECT CONDITIONS

A. Interruption of existing electrical service: Do not interrupt electrical service to facilities occupied by owner or others unless permitted under the following conditions and then only after arranging to provide temporary electrical service.
   1. Notify Owner no fewer than five days in advance of proposed interruption of electrical service.

2. Do not proceed with interruption of electrical service without Owner's written permission.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Manufacturer: ASCO Power Technologies

2.2 GENERAL TRANSFER-SWITCH PRODUCT REQUIREMENTS

A. Indicated Current Ratings: Apply as defined in UL 1008 for continuous loading and total system transfer, including tungsten filament lamp loads not exceeding 30 percent of switch ampere rating, unless otherwise indicated.

B. Tested Fault-Current Closing and Withstand Ratings: Adequate for duty imposed by protective devices at installation locations in Project under the fault conditions indicated, based on testing according to UL 1008.
1. The combination of the rating of the transfer switch and circuit breaker trip unit feeding the switch shall exceed indicated fault-current value at installation location. This series or specific breaker rating of the switch shall be acceptable for protection against instantaneous bolted type faults.

C. Microprocessor Controller With Integrated User Interface Panel
1. The controller shall be connected to the transfer switch by an interconnecting wiring harness. The harness shall include a keyed disconnect plug to enable the controller to be disconnected from the transfer switch for routine maintenance.
2. The controller shall direct the operation of the transfer switch. The controller's sensing and logic shall be controlled by a built – in microprocessor for maximum reliability, minimum maintenance, inherent serial communications capability, and the ability to communicate via Ethernet through optional communications module.
3. A single controller shall provide single and three phase capability for maximum application flexibility and minimal spare part requirements. Voltage sensing shall be true RMS type and shall be accurate to ± 1% of nominal voltage. Frequency sensing shall be accurate to ± 0.1 Hz. Time delay settings shall be accurate to ± 0.5% of the full scale value of the time delay. The panel shall be capable of operating over a temperature range of -20 to + 70 degrees C, and storage from -55 to + 85 degrees C.

4. The controller shall be enclosed with a protective cover and be mounted separate from the transfer switch unit for safety and ease of maintenance. Sensing and control logic shall be provided on printed circuit boards.

5. The controller shall meet or exceed the requirements for Electromagnetic Compatibility (EMC) as follows:
a. 61000-4 Testing And Measurement Techniques – Overview
b. IEC 61000 – 4 – 2 Electrostatic Discharge Immunity

c. IEC 61000 - 4 – 3 Radiated RF Field Immunity
d. IEC 61000 – 4 – 4 Electrical Fast Transient/Burst Immunity
e. IEC 61000 – 4 – 5 Surge Immunity
f. IEC 61000 – 4 – 6 Conducted RF Immunity
g. CISPR 11 – Conducted RF Emissions and Radiated RF Emissions

6. Data Logging – The controller shall have the ability to log data and to maintain the last 99 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in a non-volatile memory:
   a. Event Logging
   b. Data and time and reason for transfer normal to emergency.
   c. Data and time and reason for transfer emergency to normal.
   d. Data and time and reason for engine start.
   e. Data and time engine stopped.
   f. Data and time emergency source available.
   g. Data and time emergency source not available.
7. Statistical Data
   a. Total number of transfers.
   b. Total number of transfers due to source failure.
   c. Total number of days controller is energized.
   d. Total number of hours both normal and emergency sources are available.

8. Controller Display and Keypad
   a. A 128*64 graphical LCD display and keypad shall be an integral part of the controller for viewing all available data and setting desired operational parameters. Operational parameters shall also be available for viewing and limited control through communications port. The following parameters shall only be adjustable via DIP switches on the controller.
      1) Nominal line voltage and frequency
      2) Single or three phase sensing on normal
      3) Transfer operating mode configuration, (open transition, or delayed transition)

   A. All instructions and controller settings shall be easily accessible, readable, and accomplished without the use of codes, calculations, or instruction manuals.
9. Voltage and Frequency Sensing: Voltage and frequency on both the normal and emergency sources (as noted below) shall be continuously monitored, with the following pickup, dropout, and trip settings capabilities (values shown as % of nominal unless otherwise specified.

Parameter	Sources	Dropout/Trip	Pickup/Reset
Under-voltage	N & E	70 to 98%	85 to 100%
Over-voltage	N & E	102 to116%	2% below trip
Under-frequency	N & E	85 to 98%	86 to 100%
Over-frequency	N & E	101 to 111%	2% below trip

10. Repetitive accuracy of all settings shall be within 1% at +25C
11. Voltage and frequency settings shall be field adjustable in 1% increments either locally with the display and keypad or remotely via serial communications port access.
12. Source status screens shall be provided for both normal & emergency to provide digital readout of voltage and frequency. Note: Single phase sensing on emergency
13. The backlit 128*64 graphical display shall have multiple language capability. Languages can be selected from the user interface.

D. Time Delays Within Control Panel

1. A time delay shall be provided to override momentary normal source outages and delay all transfer and engine starting signals, adjustable 0 to 6 seconds. It shall be possible to bypass the time delay from the controller user interface.
2. A time delay shall be provided on transfer to emergency, adjustable from 0 to 60 minutes 59 seconds for controlled timing of transfer of loads to emergency. It shall be possible to bypass the time delay from the controller user interface.
3. A generator stabilization time delay shall be provided after transfer to emergency adjustable 0 or 4 seconds.
4. A time delay shall be provided on retransfer to normal, adjustable 0 to 9 hours 59 minutes 59 seconds. Time delay shall be automatically bypassed if emergency source fails and normal source is acceptable.
5. A cooldown time delay shall be provided on shutdown of engine generator, Adjustable 0 to 60 minutes 59 seconds.
6. All adjustable time delays shall be field adjustable without the use of special tools.
7. A time delay activated output signal shall also be provided to drive an external relay(s) for selective load disconnect control. The controller shall have the ability to activate an adjustable 0 to 5 minutes 59 seconds time delay in any of the following modes:
    a. Prior to transfer only.
    b. Prior to and after transfer.
    c. Normal to emergency only.
    d. Emergency to normal only.
    e. Normal to emergency and emergency to normal.
    f. All transfer conditions or only when both sources are available.
8. In the event that the alternate source is not accepted within the configured Failure to accept time delay, the common alert indication shall become active.
9. The controller shall also include the following built-in time delay for delayed transition operation.
10. Time delay for the load disconnect position for delayed transition operation adjustable 0 to 5 minutes 59 seconds.

E. Additional Transfer Switch Features

1. The user interface shall be provided with test/reset modes. The test mode will simulate a normal source failure. The reset mode shall bypass the time delays on either transfer to emergency or retransfer to normal.

2. A set of contacts rated 5 amps, 30 VDC shall be provided for a low-voltage engine start signal. The start signal shall prevent dry cranking of the engine by requiring the generator set to reach proper output, and run for the duration of the cool down setting, regardless of whether the normal source restores before the load is transferred.
3. Auxiliary contacts, rated 10 amps, 250 VAC shall be provided consisting of one contact, closed when the ATS is connected to the normal source and one contact closed when the ATS is connected to the emergency source.
4. A single alarm indication shall light up the alert indicator and de – energize the configured common alarm output relay for external monitoring.
5. LED indicating lights shall be provided; one to indicate when the ATS is connected to the normal source (green) and one to indicate when the ATS is connected to the emergency source (red).
6. LED indicating lights shall be provided and energized by controller outputs. The lights shall provide true source availability of the normal (green) and emergency (red) source, as determined by the voltage sensing trip and reset settings for each source.
7. LED indicating light shall be provided to indicate switch not in automatic mode (manual); and blinking (amber) to indicate transfer inhibit.
8. LED indicating light shall be provided to indicate any alarm condition or active time delay (red).
9. The following features shall be built – in to the controller, but capable of being activated through keypad programming or the serial port only when required by the user:
    a. Provide the ability to select “commit/no commit to transfer” to determine whether the load should be transferred to the emergency generator if the normal source restores before the generator is ready to accept the load.
    b. A variable window in-phase monitor shall be provided in the controller. The monitor shall control transfer so that motor load inrush currents do not exceed normal starting currents, and shall not require external control of power sources. The in-phase monitor shall be specifically designed for and be the product of the ATS manufacturer. The in-phase monitor shall be equal to ASCO feature 27.
    c. An engine generator exercising timer shall be provided to configure weekly and bi-weekly automatic testing of an engine generator set with or without load for 20 minutes fixed. It shall be capable of being configured to indicate a day of the week, and time weekly testing should occur.
10. The following feature shall be built – into the controller, but capable of being activated through keypad programming, communications interface port, or additional hardware.
    a. Terminals shall be provided for a remote contact to signal the ATS to transfer to emergency. This inhibit signal can be enabled through the keypad or serial port.
    b. System Status - The controller LCD display shall include a “System Status” screen which shall be readily accessible from any point in the menu by depressing the “ESC” key. This screen shall display a clear

description of the active operating sequences and switch position. For example,

1. Normal Failed
2. Load on Normal
3. TD Normal to Emerg - 2min15s

c. Controllers that require multiple screens to determine system status or display "coded" system status messages, which must be explained by references in the operator's manual are not permissible.

d. Self-Diagnostics – The controller shall contain a diagnostic screen for the purpose of detecting system errors. This screen shall provide information on the status input signals to the controller which may be preventing load transfer commands from being completed.

e. Communications Interface – The controller shall be capable of interfacing, through an optional serial communication port with a network of transfer switches, locally (up to 4000 ft.). Standard software specific for transfer switch applications shall be available by the transfer switch manufacturer. This software shall allow for the monitoring, .control, and setup of parameters.

f. Data Logging – The controller shall have the ability to log data and to maintain the last 300 events, even in the event of total power loss. The following events shall be time and date stamped and maintained in a non–volatile memory.

1. Event Logging
2. Data and time and reason for transfer normal to emergency
3. Data and time and reason for transfer emergency to normal
4. Data and time and reason for engine start
5. Data and time engine stopped
6. Data and time emergency source available
7. Data and time emergency source not available

g. Statistical Data

1. Total number of transfers
2. Total number of transfers due to source failure
3. Total number of day's controller is energized
4. Total number of hours normal and emergency sources are available
5. Total time load is connected to normal
6. Total time load is connected to emergency
7. Last engine start
8. Last engine start up time
9. Input and output status

F. Expansion Module - A relay expansion module (REX) is a standard transfer is specified. A REX module shall also be provided for open transition transfer that includes one form C contact for source availability of the normal (18G) and emergency (18B) sources. Additional output relay shall be provided to indicate a common alarm. The REX module shall have the capability of being daisy chained for multiple sets of contacts. (This feature shall be equal to ASCO accessory 18RX, and shall be capable of being added to existing switches without modification).

G. Current Sensing Card - A load current metering card shall be provided that measures either all phases single or three phase load current. It shall include current transformers (CT's) and shorting block. Parameters shall be able to be viewed via the user interface.

H. Communications Module – Shall provide remote interface module to support monitoring of vendor's transfer switch, controller and optional power meter. Module shall provide status, analog parameters, event logs, equipment settings & configurations over embedded webpage and open protocol. Features shall include:

1. Email notifications and SNMP traps of selectable events and alarms may be sent to a mobile device or PC.
2. Modbus TCP/IP, SNMP, HTTP, SMTP open protocols shall be simultaneously supported.
3. Web app interface requiring user credentials to monitor and control the transfer switch supporting modern smart phones, tablets and PC browsers. User will be able to view the dynamic one-line, ATS controls status, alarms, metering, event logging as well as settings.
4. Secure access shall be provided by requiring credentials for a minimum of 3 user privilege levels to the web app, monitor (view only), control (view and control) and administrator (view, control and change settings). 128-Bit AES encryption standard shall be supported for all means of connectivity.
5. Shall allow for the initiating of transfers, retransfers, bypassing of active timers and the activating/deactivating of engine start signal shall be available over the embedded webpage and to the transfer switch vendor's monitoring equipment.
6. An event log displaying a minimum of three-hundred (300) events shall be viewable and printable from the embedded webpages and accessible from supported open protocols.
7. Four (4) 100 Mbps Ethernet copper RJ-45 ports, two (2) serial ports, and LEDs for diagnostics.
8. DIN rail mountable.

A. Resistance to Damage by Voltage Transients: Components shall meet or exceed voltage-surge withstand capability requirements when tested according to IEEE C62.41. Components shall meet or exceed voltage-impulse withstand test of NEMA ICS 1

E. Electrical Operation: Accomplish by a non-fused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.

F. Switch Characteristics: Designed for continuous-duty repetitive transfer to full-rated current between active power sources.

1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
2. Switch Action: Double throw; mechanically held in both directions.
3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts. Transfer switches using tin plated contacts are not acceptable.

B. Electrical Operation: Accomplish by a non-fused, momentarily energized solenoid or electric-motor-operated mechanism, mechanically and electrically interlocked in both directions.

Switch Characteristics: Designed for continuous-duty repetitive transfer to full-rated current between active power sources.

1. Limitation: Switches using molded-case switches or circuit breakers or insulated-case circuit-breaker components are not acceptable.
2. Switch Action: Double throw; mechanically held in both directions.
3. Contacts: Silver composition or silver alloy for load-current switching. Conventional automatic transfer-switch units, rated 225 A and higher, shall have separate arcing contacts. Transfer switches using tin plated contacts are not acceptable.

C. Neutral Terminal: Solid if not shown on the plans as 4 Pole. 4 pole switches shall be, switched and fully rated, if indicated on the drawings.

D. Annunciation, Control, and Programming Interface Components: Devices at transfer switches for communicating with remote programming devices, annunciators, or annunciator and control panels shall have communication capability matched with remote device.

E. Enclosures: General-purpose Type 3R enclosure, unless otherwise indicated on plans.

F. Outdoor rated enclosures shall be equipped with a strip heater with thermostat.

G. The transfer switch controller shall be mounted on, visible, and operational through enclosure door. Nema 3R rated transfer switches shall be secured type, with the controller and all operators behind a lockable door.

H. The complete assembly shall be degreased, and thoroughly cleaned through a five-stage aqueous process. The finish shall be ANSI-61, light gray, electrostatically-charged polyester powder paint over a phosphate coating, at a minimum of 2.0 mils in density. Finish shall be suitable for indoor and outdoor environments.

I. Control wiring shall be rated for 600 volt, UL 1015. Wires shall be placed in wire duct or harnessed, and shall be supported to prevent sagging or breakage from weight or vibration. All wiring to hinged doors shall be run through door terminal blocks or connection plugs.

2.3 AUTOMATIC TRANSFER SWITCHES

A. Comply with Level 1 equipment according to NFPA 110.

B. Switching Arrangement: Double-throw type, incapable of pauses or intermediate position stops during normal functioning, unless otherwise indicated to be closed transition.

C. All transfer switches shall be open transition with in-phase monitor unless shown on the plans as delayed transition.

D. In-Phase Monitor: Factory-wired, internal relay controls transfer so it occurs only when the two sources are synchronized in phase. Relay compares phase relationship and frequency difference between normal and emergency sources and initiates transfer when both sources are within 15 electrical degrees, and only if transfer can be completed within 60 electrical degrees. Transfer is initiated only if both sources are within 2 Hz of nominal frequency and 70 percent or more of nominal voltage.

E. Terminal provisions for a remote contact which opens to signal, the transfer witch to transfer to emergency and for remote contacts which open to inhibit transfer to emergency and/or retransfer to normal. Both of these inhibit signals can be activated through the keypad or serial port.

F. Unassigned Auxiliary Contacts: Two normally open, single-pole, double-throw contacts for each switch position, rated 10 A at 240-V ac.

G. The controller shall be capable of accepting a normally open contact that will allow the transfer switch to function in a non-automatic mode using an external control device

H. Engine Starting Contacts: One isolated and normally closed, and one isolated and normally open; rated 5 A at 30-V dc minimum.

I. Engine Shutdown Contacts: Time delay adjustable from zero to five minutes, and factory set for five minutes. Contacts shall initiate shutdown at remote engine-generator controls after retransfer of load to normal source.

J. Engine-Generator Exerciser: Solid-state, programmable-time switch starts engine generator and transfers load to it from normal source for a preset time, then retransfers and shuts down engine after a preset cool-down period. Initiates exercise cycle at preset intervals adjustable from 7 to 30 days. Running periods are adjustable from 10 to 30 minutes. Factory settings are for 30-day exercise cycle, 20-minut running period, and 5-minute cool-down period. The control panel shall allow up to seven different testing routines to be programmed into the controller. Exerciser features include the following:
   1. Exerciser Transfer Selector Switch: Permits selection of exercise with and without load transfer.
   2. Push-button programming control with digital display of settings.
   3. Integral battery operation of time switch when normal control power is not available..

K. A single alarm indication shall light up the alert indicator and de – energize the configured common alarm output relay for external monitoring.

L. Communications Interface – The controller shall be capable of interfacing, through an optional serial communication port with a network of transfer switches, locally (up to 4000 ft.). Standard software specific for transfer switch applications shall be available by the transfer switch manufacturer. This software shall allow for the monitoring, control, and setup of parameters.

M. Accessory Package - An accessory bundle shall be provided that includes: 1. A fully programmable engine exerciser with seven independent routines to exercise the engine generator, with or without load on a daily weekly, bi – weekly, or monthly basis. 2. Event log display that shows event number, time and date of events, event type, and reason (if applicable). A minimum of 300 events shall be stored. 3. RS – 485 communications port enabled. 4. Common alarm output contact. (This feature shall be equal to ASCO accessory 11BE, and shall be capable of being activated for existing switches through optional accessory dongle).

2.4 SOURCE QUALITY CONTROL

A. Factory test and inspect components, assembled switches, and associated equipment. Ensure proper operation. Check transfer time and voltage, frequency, and time-delay settings for compliance with specified requirements. Perform dielectric strength test complying with NEMA ICS1.

B. The automatic transfer switch shall be provided with a complete 5 year parts and labor warranty from the date of shipment. This warranty shall not be contingent upon any service coverage being purchased or deductibles paid to get service onsite.

PART 3 EXECUTION

3.1 INSTALLATION

A. Design each fastener and support to carry load indicated by seismic requirements and according to seismic-restraint details. See Section 260548 “Vibration and Seismic Controls for Electrical Systems”.

B. Floor-Mounting Switch: Anchor to floor by bolting.
1. Concrete Bases: 6 inches high, reinforced, with chamfered edges. Extend base no more than 6 inches in all directions beyond the maximum dimensions of switch, unless otherwise indicated or unless required for seismic support. Construct concrete bases according to Section 260529 “Hangers and Supports for Electrical Systems”.

C. Identify components according to Section 260553 “Identification for Electrical Systems”.

D. Set field-adjustable intervals and delays, relays, and engine exerciser clock.

3.2 CONNECTIONS

A. Wiring to Remote Components: Match type and number of cables and conductors to control and communication requirements of transfer switches as recommended by manufacturer. Increase raceway sizes at no additional cost to Owner if necessary to accommodate required wiring.

B. Ground equipment according to Section 260526 “Grounding and Bonding for electrical Systems”.

C. Connect wiring according to Section 260519 “Low-Voltage Electrical Power Conductors and Cables”.

3.3 FIELD QUALITY CONTROL

A. Manufacturer’s Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections. Report results in writing.

1. Manufacturer’s Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installation, including connections, and to assist in testing.
2. After installing equipment and after electrical circuitry has been energized, test for compliance with requirements.
3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
4. Measure insulation resistance phase-to-phase and phase-to-ground with insulation-resistance tester. Include external annunciation and control circuits. Use test voltages and procedure recommended by manufacturer. Comply with manufacturer’s specified minimum resistance.
    a. Check for electrical continuity of circuits and for short circuits.
    b. Inspect for physical damage, proper installation and connection, and integrity of barriers, covers, and safety features.
    c. Verify that manual transfer warnings are properly placed.
    d. Perform manual transfer operation.
5. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
    a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.
    b. Simulate loss of phase-to-ground voltage for each phase of normal source.
    c. Verify time-delay settings.
    d. Verify pickup and dropout voltages by data readout or inspection of control settings.
    e. Test transfer-switch operations.
    f. Perform contact-resistance test across main contacts and correct values exceeding 500 micro-ohms and values for 1 pole deviating by more than 50 percent from other poles.
    g. Verify proper sequence and correct timing of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool down and shutdown.
6. Ground-Fault Tests: Coordinate with testing of ground-fault protective devices for power delivery from both sources.
    a. Verify grounding connections and locations and ratings of sensors.
7. After energizing circuits, demonstrate interlocking sequence and operational function for each switch at least three times.
    a. Simulate power failures of normal source to automatic transfer switches and of emergency source with normal source available.

b. Simulate loss of phase-to-ground voltage for each phase of normal source.
c. Verify time-delay settings.
d. Verify pickup and dropout voltages by data readout or inspection of control settings.
e. Test bypass/isolation unit functional modes and related automatic transfer-switch operations.
f. Perform contact-resistance test across main contacts and correct values exceeding 500 micro-ohms and values for 1 pole deviating by more than 50 percent from other poles.
g. Verify proper sequence and correct time of automatic engine starting, transfer time delay, retransfer time delay on restoration of normal power, and engine cool-down and shut down.

B. Coordinate tests with tests of generator and run them concurrently.

C. Report results of tests and inspections in writing. Record adjustable relay settings and measured insulation and contact resistances and time delays. Attach a label or tag to each tested component indicating satisfactory completion of tests.

D. Remove and replace malfunctioning units and retest as specified above.

E. Infrared Scanning: After Substantial Completion, but not more than 60 days after Final Acceptance, perform an infrared scan of each switch. Remove all access panels so joints and connections are accessible to portable scanner.
1. Follow-up Infrared Scanning: Perform an additional follow-up infrared scan of each switch 11 months after date of Substantial Completion.
2. Instrument: Use an infrared scanning device designed to measure temperature or to detect significant deviations from normal values. Provide Calibration record for device.
3. Record of Infrared Scanning: Prepare a certified report that identifies switches checked and that described scanning results. Include notation of deficiencies detected, remedial action taken and observations after remedial action.

3.4 DEMONSTRATION

A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain transfer switches and related equipment as specified below. Refer to Section 017900 "Demonstration and Training".

Coordinate this training with that for generator equipment.