

GENERAL SPECIFICATIONS

of material and labor required in the construction and completion of an interior renovation entitled:

CITY OF WIXOM RENOVATIONS 2024

for:
City of Wixom
Wixom, Michigan

in accordance with the
accompanying drawings and
specifications prepared by:

LINDHOUT ASSOCIATES, architects a.i.a., p.c.
10465 citation drive, brighton, michigan 48116

Comm. No. 23016 &
23002
810-227-5668

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INSTRUCTIONS TO BIDDERS

Proposal, to be entitled to consideration, must be made in accordance with the following instructions:

- 01 Proposals shall be made on the forms provided therefore; all blanks in the forms shall be fully filled; numbers shall be stated both in writing and in figures; the signature shall be in long hand; the completed form shall be without interlineations, alteration or erasure.
- 02 Proposals shall not contain any recapitulation of the work to be done. No oral, telegraphic, or telephonic proposals or modifications will be considered.
- 03 Proposals shall be received by the City Clerk at 49045 Pontiac Trail, Wixom, MI 48393, Michigan. Proposals shall be enclosed in an opaque sealed envelope and filed not later than 2:00 pm on April 24, 2024. Include in Envelope: 1 original, 1 copy, and 1 PDF file copy on a thumb drive.
- 04 Should a bidder find discrepancies in, or omissions from the drawings or documents, or should he be in doubt as to their meaning, he should at once notify the Architect who will send a written instruction to all bidders. Neither the Architect nor the Owner will be responsible for any oral instructions.
- 05 Before submitting a proposal, bidders should carefully examine the drawings and specifications, visit the site of the work, fully inform themselves as to all existing conditions and limitations under which they shall work and shall include in the proposal a sum to cover the cost of all items included in the contract.
- 06 The competency and responsibility of bidders and of their proposed subcontractors will be considered in making the award. The Owner does not obligate himself to the lowest of any other bidder and reserves the right to reject any or all proposals, in whole or in part, and to waive any informalities therein.
- 07 Any addenda issued during the time of bidding are to be covered in the proposal and in closing a contract they will become a part thereof. No addenda will be issued less than three (3) days prior to the due date of proposals.
- 08 Each proposal must list in the allotted space any proposed substitutions for required base proposal material.
- 09 The terms used within the documents, "Owner", & "City" all refer to the same entity, The City of Wixom.

CONTRACTS

- 01 It is intended that the work as shown on the accompanying drawings and described in the specifications shall be done under one general contractor for all trades.
- 02 Proposals will be received for:
 - a. PROPOSAL "A: - ALL TRADES - Specification Divisions 1 thru 16
Architects Comm. No. 23016 and 23002.
 - b. ALTERNATE PROPOSALS - AS INDICATED

CONTRACT DOCUMENTS

- 01 The instruments upon which proposals and contract for the work to based are:

- a. General conditions of the Contract, Standard Form as issued by the American Institute of Architects, Articles 1 through 14, together with additions and modifications as stated in Division 1 of the Specifications and specifically stricken in copy of General Conditions included herein.
- b. Specifications for Work Divisions 1 through 16, except as specifically deleted.
- c. Architectural, Mechanical and Electrical Drawings covering the work.
- d. Addenda as may be issued in the course of bidding.
- e. The form of Agreement which the successful Bidder will be required to execute is AIA Document A101.

BIDDING DOCUMENTS

- 01 The drawings and specifications are public property of the City. The drawings and specifications shall be destroyed at the completion of the project. Bidding Documents will be distributed electronically on Bidnet.

BASE BID SPECIFICATION

- 01 Whenever the specifications call for one specific product, material application, etc. the Contractor or sub-contractor shall bid solely on that which is named. All Base Bids shall then be consistent in such a manner as to permit the best possible evaluation of all proposals.
- a. The Owner and architect in no way wish to overlook any possible alternate material that may be satisfactory as a direct substitute. At the contractor's option a list of proposed alternates of materials, products, methods, etc., may be attached to his proposal form stating the proposed substitute and the cost savings, if any, of the substitution. The Base Bid, however, shall be based on all items as specified.
 - b. Should any real and definite hardship result in the foregoing "Base Bid" the Contractor shall communicate the facts to the Architect, and if warranted, an addendum will be issued to all bidders rectifying the condition.

BID BOND

- 01 Every person, firm or corporation submitting a proposal shall be required to furnish with such bid, a certified check or bid bond which shall be forfeited to the City of Wixom in case of failure of the bidder to sign a contract within fifteen days after the award of contract to him. The certified check or bond shall be in the amount of 5% of the bid amount.

SURETY BONDS

- 01 Accepted bidders will be required to furnish two surety bonds, each made out in the form consistent with that supplied by the AIA, document A312, as follows:
- a. A payment bond for the full amount of the contract running to the people of the State of Michigan Guaranteeing the payment of all subcontractors and all indebtedness incurred for labor, materials, or any cause whatsoever on account of this contractor in accordance with the laws of the State of Michigan relating to such bonds.
 - b. A material and labor bond for the full amount of the contract running to the City of Wixom, to guarantee and insure the completion of the work according to the contract.

DIVISION 01A**GENERAL REQUIREMENTS****SECTION 01A****SUPPLEMENTARY GENERAL CONDITIONS**

01 The General Conditions of the Contract for the Construction of Buildings Standard Form of the American Institute of Architects, latest Edition: Article 1 through 14 inclusive are hereby, except as the same way be inconsistent with, made a part of this specification.

- a. Where any article of the "A.I.A. General Conditions" is herein supplemented, the A.I.A. provisions shall remain in effect. All the supplemental provisions shall be considered as added thereto. Where any such article is amended, voided or superseded, the provisions of such article not so specifically amended, voided or superseded, shall remain in effect.

02 **ARTICLE 15** **DRAWINGS AND SPECIFICATIONS**

- a. The drawings and specifications are complementary, and what is called for by one is binding as if called for by the other.

03 **ARTICLE 16** **INSURANCE**

This article shall void Article II of the General Conditions as cited in Paragraph A under the heading of this Division.

16.1 **CONTRACTORS LIABILITY INSURANCE**

16.1.1 The Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, such insurance as will protect the contractor from claims set forth below which may arise out of or result from the Contractor's operations under the Contract, and for which the Contractor may be legally liable, whether such operations be by the Contractor or by a Subcontractor or by anyone directly or indirectly employed by any of them, or by anyone for whose acts and of them may be liable:

1. claims under workers' or workmen's compensation, disability benefit and other similar employee benefit acts which are applicable to the Work to be performed;
2. claims for damages because of bodily injury, occupational sickness or disease, or death of the Contractor's employees;
3. claims for damages because of bodily injury, sickness or disease, or death of any person other than the Contractor's employees;
4. claims for damages insured by usual personal injury liability coverage which are sustained (1) by a person as a result of an offense directly or indirectly related to employment of such person by the Contractor, or (2) by another person;
5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property, including loss of use resulting therefrom;
6. claims for damages because of bodily injury, death of a person or property damage arising out of ownership, maintenance or use of any motor vehicle; and
7. claims involving contractual liability insurance applicable to the Contractors obligations, under Paragraph 3.18.

16.1.2 The insurance required by Subparagraph 16.1.1 shall be written for not less than the limits of liability specified in the Contract Documents, or required by law, whichever coverage is greater.

Coverage, whether written on an occurrence or claims-made basis, shall be maintained without interruption from date of commencement of the Work until date of final payment and termination of any coverage required to be maintained after final payment. Notwithstanding the above, the insurance required by paragraph 16.1 shall be on an occurrence basis.

- 16.1.2.1 Such insurance shall be written to include the following coverage and for not less than the following minimum limits or greater if required by law;
1. Worker's Compensation, Occupational Disease and Employer's Liability Insurance:
 - A. State of Michigan - Statutory Limits
 - B. Applicable Federal (if any) - Statutory limits.
 - C. Employer's Liability -
 - Bodily Injury by Accident - \$1,000,000 each accident
 - Bodily Injury by Disease - \$1,000,000 each employee
 - Bodily Injury by Disease - \$1,000,000 each policy limit
 2. Commercial General Liability Insurance including as minimum coverage:
 - Premises - Operations Liability
 - Independent Contractor's Protective Liability
 - Broad Form Property Damage Endorsement
 - Blank Contractual
 - Personal Injury, with Employment Exclusion deleted
 - A. Special Requirements:
 1. Property Damage Liability Insurance will provide "X, C, and U" (Explosion, collapse and underground hazard) coverage as applicable.
 2. Products and Completed Operation to be maintained for 1 year after final payment.
 3. The owner, architect, their consultants, agents and employees, shall be named as: additional insured's on the commercial general liability policy of the general contractor an/or subcontractor of any tier.
 - B. Limits of Liability:
 - \$1,000,000 Each Occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.
 - \$1,000,000 General Aggregate
 - \$1,000,000 Products/Completed Operations Aggregate
 - \$1,000,000 Personal and Advertising Injury
 3. Automobile Liability Insurance":
 - A. Special Requirements:
 1. All owned, hired, and non-owned vehicles including the loading or unloading thereof.

2. The owner, architect, their consultants, agents and employees, shall be name as "additional insured's" on the commercial automobile liability policy of the general contractor and/or subcontractor of any tier.

B. Limits of Liability

\$1,000,000 Each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

4. Owner's and Architect's Protective Liability Incurrence:

The Contractor will furnish and maintain during the entire period of construction an Owner's Protective Liability Policy written in the name of the owner, architect, and architect's consultants, with the following limits of liability:

Limits of Liability:

\$1,000,000 Each occurrence as respects Bodily Injury Liability or Property Damage Liability, or both combined.

\$1,000,000 General Aggregate

5. Umbrella/Excess Liability Insurance:

Limits of Liability

\$1,000,000 Each occurrence

\$1,000,000 Aggregate

16.1.3 Certificates of Insurance for the above coverage and the Owner's Protective Policy shall be submitted to the Architect for transmittal to the Owner for his approval prior to the start of construction. The Contractor shall certify to the Owner that he has obtained or will obtain similar certificates of insurance from each of his Subcontractors before their work commences. Each Subcontractor must be covered by insurance of the same character and in the same amounts as the Contractor unless the Contractor and the Owner agree that a reduced coverage is adequate. Each subcontractor's insurance shall cover the Owner, Architect, their agents and employees. The Contractor shall submit a statement with each monthly affidavit stating that he has obtained certificates of insurance, or other satisfactory evidence, that all required insurance is in force for each of the Subcontractors listed on his affidavit. If the "additional insured" have other insurance which is applicable to the loss, it shall be on an excess or contingent basis. The amount of the company's liability under this policy shall not be reduced by the existence of such other insurance Contractor certificates shall be in duplicate on standard Acord forms.

16.1.3.1 Certificate of insurance shall contain a statement therein or a rider attached thereto incorporating the indemnity clause stated in Paragraph 3.18 (Indemnification) and Subparagraphs 3.18.1, 3.18.1.1, 3.18.2 and 3.18.3 of the General Conditions, and including the changes and addition made in those subparagraphs within these Supplemental General Conditions.

16.1.3.2 These Certificates and the insurance policies required by this Paragraph 16.1 shall contain a provision that coverage afforded under the policies will not be canceled or allowed to expire until at least thirty (30) days prior written notice has been given to the Owner and Architect. If any of the foregoing insurance coverage is required to remain in force after final payment and are reasonably available, an additional certificate evidencing continuation of such coverage

shall be submitted with the final Application for Payment as required by Subparagraph 9.10.2. Information concerning reduction of coverage shall be furnished by the Contractor with reasonable promptness in accordance with the Contractor's information and belief.

- 16.1.3.3 The obligations of the Contractor under the provisions of this article shall not extend to the liability of the Architect, his agents or employees arising out of (1) the preparation or approval of maps, drawings, opinions, reports, surveys, change orders, designs, or specifications, or (2) the giving of or the failure to give directions or instructions by the Architect, his agents or employees to the extent that such giving or failure to give is the cause of the injury or damage.

16.2 OWNER'S LIABILITY INSURANCE

- 16.2.1 The Owner shall be responsible for purchasing and maintaining the Owner's usual liability insurance. Optionally, the Owner may purchase and maintain other insurance for self-protection against claims, which may arise from operations under the Contract. The Contractor shall not be responsible for purchasing and maintaining this optional Owner's liability insurance unless specifically required by the Contract Documents.

16.3 PROPERTY INSURANCE

- 16.3.1 Unless otherwise provided, the Owner shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance in the amount of the initial Contract Sum as well as subsequent modifications thereto for the entire Work at the site on a replacement cost basis without voluntary deductibles. Such property insurance shall be maintained, unless otherwise provided in the Contract Documents or otherwise agreed in writing by all persons and entities who are beneficiaries of such insurance, until final payment has been made and provided in Paragraph 9.10 or until no person or entity other than the Owner has an insurable interest in the property required by this Paragraph 16.3 to be covered, whichever is earlier. This insurance shall include interests of the Owner, Architect, the Contractor, Subcontractors and the Sub-subcontractors in the Work.

Property Insurance provided by Owners shall not cover any tools, apparatus, machinery, scaffolding, hoists, forms, staging, shoring and other similar items commonly referred to as construction equipment, which may be on the site and the capital value of which is not included in the Work. The Contractor shall make his own arrangements for any insurance he may require on such construction equipment.

- 16.3.1.2 If the Owner does not intend to purchase such property insurance required by the Contract and with all of the coverage in the amount described above, the Owner shall so inform the Contractor in writing prior to commencement of the Work. The Contractor may then affect insurance, which will protect the interests of the Contractor, Subcontractors and Sub-subcontractors in the Work, and by appropriate Change Order, the cost thereof shall be charged to the Owner. If the contractor is damaged by the failure or neglect of the Owner to purchase or maintain insurance as described above, without so notifying the Contractor then the Owner shall bear all reasonable cost properly attributable thereto.
- 16.3.1.3 If the property insurance required minimum deductibles and such deductibles are identified in the Contract Documents, the Contractor shall pay costs not covered because of such deductibles. If the Owner or insurer increases the required minimum deductibles above the amounts so identified or if the Owner elects to purchase this insurance with voluntary deductible amounts, the Owner shall be responsible for payment of the additional costs not covered because of such increased or voluntary deductibles. If deductibles are not identified to the Contract Documents, the Owner shall pay costs not covered because of deductibles. The property insurance for the Work requires a minimum deductible of: \$5,000 per claim.

- 16.3.2 **Boiler and Machinery Insurance.** The Owner shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the Owner; this insurance shall include interests of the Owner, Contractor, Subcontractors and Sub-subcontractors in the Work, and the Owner and Contractor shall be named insured's.
- 16.3.3 **Loss of Use Insurance.** The Owner, at the Owner's option, may purchase and maintain such insurance as will insure the Owner against loss of use of the Owner's property due to fire or other hazards, however caused. The Owner waives the rights of action against the Contractor for loss of use of the Owner's property, including consequential losses due to fire or other hazards however caused.
- 16.3.4 If the Contractor requests in writing that insurance for risks other than those described herein or for other special hazards be included in the property insurance policy, the Owner shall, if possible, include such insurance, and the cost thereof shall be charged to the contractor by appropriate Change order.
- 16.3.5 If during the Project construction period the Owner insures properties, real or personal or both, adjoining or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, the Owner shall waive all rights in accordance with the terms of Subparagraph 16.3.7 for damages caused by fire or other perils covered by this separate property insurance. All separate policies shall provide this waiver of subrogation by endorsement or otherwise.
- 16.3.6 Before an exposure to loss may occur, the Owner shall file with the Contractor a copy of each policy that includes insurance coverage required by the Paragraph 16.3. Each policy shall contain all generally applicable conditions, definitions, exclusions and endorsements related to this Project. Each policy shall contain a provision that the policy will not be cancelled or allowed to expire until at least 30 days prior written notice has been given to the Contractor.
- 16.3.7 **Waivers of Subrogation.** If permitted by the Owner's and Contractor's insurance companies, without penalties, the Owner and Contractor waive all rights against (1) each other and any of their Subcontractors, Sub-subcontractors, agents and employees, each of the other, and (2) the Architect, Architect's consultants, separate contractors described in Article 6, if any, and any of their Subcontractors, Sub-subcontractors, agents and employees, for damages caused by fire or other perils to the extent covered by property insurance obtained pursuant to this Paragraph 16.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the Owner as fiduciary. The Owner or Contractor, as appropriate, shall require of the Architect, Architect's consultants, separate contractors described in Article 6, if any, and the Subcontractors, Sub-subcontractors, agents and employees of any of them, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.
- 16.3.8 A loss insured under Owner's property insurance shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insured, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Subparagraph 16.3.10. The Contractor shall pay Subcontractors their just shares of insurance proceeds received by the Contractor, and by appropriated agreements, written where legally required for validity, shall require Subcontractors in similar manner.

- 16.3.9 If required in writing by a party in interest, the Owner as fiduciary shall, upon occurrence of an insured loss, give bond for proper performance of the Owner's duties. The cost of required bonds shall be charged against proceeds received as fiduciary. The Owner shall deposit in a separate account proceeds he received, which the Owner shall distribute in accordance with such agreement as the parties in interest may reach or in accordance with an arbitration award in which case the procedure shall be as provided in Paragraph 4.5. If after such loss no other special agreement is made, replacement of damaged property shall be covered by appropriate Change Order.
- 16.3.10 The Owner as fiduciary shall have power to adjust and settle a loss with insurers unless one of the parties in interest shall object in writing within five days after occurrence of loss to the Owner's exercise of this power; if such objection be made, arbitrators shall be chosen as provided in Paragraph 4.5. The Owner as fiduciary shall, in that case, make settlement with insurers in accordance with directions of such arbitrators. If distribution of insurance proceeds by arbitration is required, the arbitrators will direct such distribution.
- 16.3.11 Partial occupancy or use in accordance with Paragraph 9.9 shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise. The Owner and the Contractor shall take reasonable steps to obtain consent of the insurance company or companies and shall, without mutual consent, take no action with respect to partial occupancy or use that would cause cancellation, lapse or reduction of insurance.

16.4 **PERFORMANCE BOND AND PAYMENT BOND**

- 16.4.1 The Owner shall have the right to require the Contractor to furnish bonds covering faithful performance of the Contract and payment of obligations arising there under as stipulated in bidding requirements or specifically required in the Contract Documents on the date of execution of the Contract.
- 16.4.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds, covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.
- 16.4.3 When required by the Owner the Contractor, before commencing the Work, shall furnish a Performance Bond and a Labor and Material Payment Bond. The Performance Bond shall be in an amount equal to one hundred percent (100%) of the full amount of the Contract Sum as security for the faithful performance of the obligations of the Contract Documents, and the Labor and Material Payment Bond shall be in an amount to equal to one hundred percent (100%) percent of the full amount of the Contract Sum as Security for the payment of all persons performing labor and furnishing materials in connection with the Contract Documents. Such bond shall be on A.I.A. Document A-312, issued by the American Institute of Architects, shall be issued by a surety satisfactory to the Owner and shall name the Owner as primary obligee.

16.5 **MISCELLANEOUS REQUIREMENTS**

- 16.5.1 All insurance coverage shall be provided by insurance companies having policy holder ratings no lower than "A" and financial ratings not lower than "XII" in the Best's Insurance Guide, latest edition in effect as of the date of the Contract.
- 16.5.2 The Contractor is responsible for determining that Subcontractors are adequately insured against claims arising out of relating to the work. The premium cost and charges for such insurance, shall be paid by each Subcontractor.

SECTION 01B**SPECIAL CONDITIONS****ARTICLE 1S****TIME OF COMPLETION**

- 01 The contract involves the construction of multiple renovation projects and requires completion for occupancy in the least time consistent with good construction practices.

ARTICLE 2S**EXAMINATION OF SITE**

- 01 The General Contractor and those sub-contractors specifically involved shall be held to have examined the site and have informed themselves of the conditions under which they must work. Their proposal shall make due allowance for the conditions that are reasonably apparent on site.
- 02 Site conditions include existing buildings A & B. Building A has the Wixom City Hall, Police Department and Building Department offices, located at 49045 Pontiac Trail. Building B has the Wixom Library, Community Center, and Senior Center departments, located at 49015 Pontiac Trail.

ARTICLE 3S**LAYING OUT WORK**

- 01 Each Sub-Contractor shall lay out the work, establish all levels and heights and provide the assistance of a competent surveyor for the work required by the sub-contractor.
- 02 The General Contractor shall establish a permanent benchmark where directed to which all measurements and levels shall be referred during the progress of the work.

ARTICLE 6S**TEMPORARY TOILETS**

- 01 The General Contractor shall provide temporary toilet facilities in an inconspicuous location on the site to satisfy City and County Health Officials.

ARTICLE 7S**COLD WEATHER PROTECTION**

- 01 All heating required by Contractors during construction prior to temporary operation of the permanent heating system shall be classified as "Cold Weather Protection". Such heat shall be furnished by each contractor requiring same. Heating units must be of approved types, and equipment and surroundings shall be kept in a clean and safe condition.
- 02 The building shall be considered as enclosed when, in the opinion of the Architect, the exterior walls are completely erected, roof deck is complete and watertight and building has such protection at doorways, windows and other openings as will provide a reasonable heat retention.
- 03 After the building is enclosed, and prior to operation of the permanent heating system, the General Construction Contractor shall provide portable space heaters sufficient to maintain the temperature inside the building between 50°F and 65°F at all other times. The General Construction Contractor shall provide all fuel. All direct fired space heaters shall be vented directly to the outside.

ARTICLE 8S**TEMPORARY HEAT**

- 01 All heating requiring temporary use of the permanent heating system shall be classified as "Temporary Heat".
- 02 The Heating Contractor shall have the permanent heating system ready to furnish temporary heat within 30 days after the building is enclosed. This shall include the setting of new boilers, unit ventilators and heating units with all necessary ductwork and piping to the boilers. Temporary heating units may be used where it is impossible to set permanent heating units.
- 03 The General Construction Contractor shall pay for all fuel for the operation of the system from the time that the system is first turned on until the Owner accepts the building. This shall include the cost of fuel; cleaning of boilers, ventilating units, filters, etc.; draining, cleaning and re-filling of system.

- 04 If the permanent heating system is used, the Heating Contractor shall be responsible for the system and its maintenance until acceptance by the Owner. A minimum temperature of 60°F and a maximum temperature of 70°F shall be maintained during working hours and not less than 55°F at all other times.

ARTICLE 9S**SHOP DRAWINGS**

- 01 All shop drawing submissions shall be examined by the General Contractor for coordination with other trades and general conformity to contract documents before submission to the Architect for the Architects review and shall bear the signature of the party so doing. The preferred submission of shop drawings is by electronic PDF drawings to the Lindhout Associates project architect, or his designee, at the appropriate e-mail address. Reviewed submissions will be returned electronically. Paper submissions, when necessary, shall furnish four (4) copies.
- 02 Corrections or comments made on the shop drawings during their review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. The contractor is responsible for:
- Confirming and correlating all quantities and dimensions.
 - Selecting fabrication processes and techniques of construction.
 - Coordinating his or her work with that of all other trades and performing all work in a safe and satisfactory manner.
- 03 Architects review of Shop Drawings shall not be construed to relieve supplier of any obligations set forth in the original contract documents. Specific reference shall be made on the Shop Drawings of any changes in or contradictions of the original documents and specific acceptance of that contradiction must be made on the drawings by the Architect.
- 04 The preceding conditions are in addition to those covered under Article 3.12 of the General Conditions of the Contract.

ARTICLE 10S**CLOSE OUT AND GUARANTEES**

- 01 At the completion of the Contract and prior to final payment:
- a. The General Contractor and sub-contractors shall give to the Owner a written guarantee that they will make good at their own expense any defects in material or workmanship, not due to ordinary wear or improper use, which may develop within one (1) year from the date of acceptance of the work unless otherwise stated in the specifications.
 - b. The Owner shall be furnished with the following as it may apply to the project and as called for in the specifications:
 1. Owner's manuals for operation and maintenance of equipment furnished under the Architectural trades.
 2. Owner's manuals for operation and maintenance for equipment furnished under the Mechanical contract; test reports of system balancing..
 3. Owner's manuals for operation and maintenance for equipment furnished under the Electrical contract; a complete brochure of lighting fixtures and lamps furnished; an as-built drawing of the electrical installation as described in the specifications.
 4. Any manufacturer certification and warranty for single ply roofing required beyond the normal two-year roofing guarantee.
 5. List of sub-contractors employed on the project, including addresses, phone and fax numbers.
 6. As built drawing of irrigation system.
 7. Final Certificate of Occupancy.

ARTICLE 11S**PROGRESS SCHEDULES**

- 01 At the time of signing of the contract, the General Contractor, in co-operation with his sub-contractors, shall furnish a schedule giving the time of starting and finishing of each trade involved.
- 02 The Schedule shall be maintained throughout the job to give an up-to-date statement of progress and completion time.
- 03 Satisfactory rate of progress and completion on time shall be essential conditions of the contract.

ARTICLE 12S**JOB SIGN**

- 01 A 4' x 8' plywood sign mounted on 4" x 4" wood posts shall be furnished and installed by the General Contractor for the project.
- 02 Sign shall be painted and bear the names of the project, Owner, Architect and Contractor. Architect will furnish layout sketch of the sign.
- 03 The General Contractor shall remove the sign at the completion of the project.

ARTICLE 13S**TEMPORARY PROTECTION**

- 01 The General Contractor shall assume responsibility for the building, site and immediately adjacent areas, providing protection to meet the governing laws.
- 02 He shall provide suitable temporary walks, fences, enclosures, to maintain unobstructed areas for pedestrians, vehicles, fire protection equipment, etc., including temporary exit enclosures. The library project requires a temporary dust-proof enclosure to protect public guests using the rest of the library area. The Police Department Break Room needs temporary closure in the adjacent hallway with circulation access retained. The front vestibule replacement project requires temporary protection enclosures to protect the building interior from outside elements during construction.
- 03 The General Contractor is referred to Article 10 of the General Conditions - Protection of Persons and Property.

ARTICLE 14S**ACCESS TO SITE**

- 01 Contractors shall consult with Architect on maintaining access route to the site for construction vehicles. All damage to existing walks, drives and landscaped areas traversed by construction vehicles shall be made good by the General Contractor.

ARTICLE 15S**OWNER'S USE OF SITE**

- 01 The Owner will maintain normal operation on the existing building on site during the construction period. The various contractors shall take all possible precautions to minimize interference with the operations. Specific considerations shall be as follows.
- a. Access to existing building shall be maintained at all times. Entry vestibule construction shall take place in two phases, with each vestibule being replaced at staggered times to allow public access in at least one vestibule. Senior Center, Police Department Break Room, and Building Department areas can be shut down during construction, but the Library must remain open during the construction of the new tutor rooms and study room.
 - b. Maintain uninterrupted, protected egress from all required exit doors of the building to the satisfaction of the Local Fire Marshal or Building Authority.
 - c. On site storage of materials shall be arranged in such a manner to not interfere with the normal use of the parking areas.

ARTICLE 16S**CONSTRUCTION SEQUENCE**

- 01 The Police Department Break Room area of the existing building will be in most part inactive for around one month during its renovation. The Building Department area will be in most part inactive for around two months during its renovation. The Senior Center area will be in the most part inactive for around three months during its renovation. The new tutor room area of the library will be for the most part inactive for around three months during its renovation, but the rest of the library area will remain open to the public during this time. The General Contractor shall schedule renovation activity of these areas for the stated amount of time.
- 02 The existing building areas that require no renovation work shall remain in use by the Owner.
- 03 Scheduling of the building addition may remain independent of the renovation work as determined by the General Contractor.

ARTICLE 17S**OTHER CONTRACTORS**

- 01 The contractor or contractors for this work shall at all times allow the Owner and any other contractors and their employees to be in the building or about the premises undisturbed as may be required in the execution of other portions of the building work, and installation of equipment, etc. Each contractor shall so arrange his work that it will interfere as little as possible with that of other trades or contracts; and in the event of disputes of such nature, the Architect's ruling in the matter shall be final and binding on all parties.

ARTICLE 18S**AWARD OF SUBCONTRACTS**

- 01 The award of subcontracts shall be subject to the right of rejection by the Owner and the Architect of any individual sub-contractor. All contracts made by the General Contractor with sub-contractors shall be covered by the terms and conditions of the prime contract.

ARTICLE 19S**OCCUPATION OF BUILDING**

- 01 The Owner reserves the right to negotiate with the contractor to occupy the building, or any portion thereof, before the building has been finally completed and accepted. It being mutually understood and agreed that such occupancy does not relieve the contractors from completing their respective work or obligations within the time specified.
- 02 The Police Department Break Room, Senior Center, and Building Department areas will not remain occupied by the owner and staff during the time of construction. The Public Library will remain occupied by the Owner and the public during construction. The rest of Building A & B not being renovated will also remain occupied by the Owner as they see fit for public or business operations.
- 03 Considerations relative to insurance coverage during partial occupancy shall be as outlined in Article 16.3.11 of the Supplemental General Conditions, Section 1A of the specifications.

ARTICLE 20S**PERMITS**

- 01 The General Contractor shall apply and pay, where necessary, for all required building and land use permits; all required plan review fees; in addition to any other required permits.
- 02 The mechanical and electrical contractors shall apply and pay for their respective permits and any required plan review fees. They shall call for all inspections and comply with all requirements.
- 03 If an inspection fee is charged due to the failure of sub-contractor to meet code or make his work accessible for the inspection, he is responsible for the re-inspection fee charged, if any.
- 04 The General Contractor, sub-contractors and their suppliers shall comply with Michigan Building Code Section 1704 Special Inspections, as it may be applied to the project by the local Building Authority for inspections and certifications.

05 See Article 29S for connection charges.

ARTICLE 21S

CONTINGENCY FUND

- 01 The City will manage their own contingency fund.
- 02 The General Contractor shall be responsible for his own contingency allowance for default of, and errors of, sub trades as necessary to complete the intended scope of the work.
- 03 Overhead and profit on this sum shall be considered included in Base Proposal.

ARTICLE 22S

**NON DISCRIMINATION IN
EMPLOYMENT**

- 01 In connection with performance of work under this contract, the contractor agrees as follows:
 - a. The contractor will not discriminate against any employee or applicant for employment because of sex, race, creed, color, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion or transfer, recruitment of other forms of compensation, and selection for training, including apprenticeship.
 - b. The contractor will, in all solicitations or advertisements for employees placed by or on behalf of the contractor state that all applicants will receive consideration for employment without regard to sex, race, creed, color or national origin.
 - c. The contractor will take such action with respect to any sub-contractor purchase order as the contracting agency may direct as means of enforcing such provisions, including sanctions for non-compliance.

ARTICLE 23S

LOCAL BONDING REQUIREMENTS

- 01 Access to site as indicated on site plan will be on roads under the Jurisdiction of Oakland county and the State of Michigan.
- 02 The General Contractor shall post a cash bond, if required, with the State, City and/or County in the amount determined by the Department of Public Works. Bond shall be against any damage done on streets, curbs, sidewalks, etc., in right-of-way.
- 03 Contractors shall abide by all restrictions on class of roads traveled.
- 04 The General contractor shall post all required bonds required for Site Improvements.

ARTICLE 24S

TRADE AGREEMENTS

- 01 The drawings and specifications make no attempt to define jurisdictional boundaries of the various trade unions. Systems and materials are specified under headings most suited to the project and construction locale from the Architect's and Owners viewpoint.

ARTICLE 25S

GAS SERVICE

- 01 The General Contractor shall arrange and pay for the new gas service and meter for the building.
- 01 The General Contractor shall arrange and pay for the revised gas service to the building.

ARTICLE 26S

SOIL EROISON PERMIT

- 01 General Contractor shall apply and pay for required soil erosion permit as called for by local regulatory agency.

ARTICLE 27S**CONSTRUCTION FENCE**

- 01 The General Contractor shall fence in the construction and storage areas with a 4 foot high snow fence. Areas include Building B's entry vestibules, concrete walks, patio and other entry doors to be renovated at Building B.

ARTICLE 28S**SAFETY RULES**

- 01 All contractors and their employees shall comply with applicable requirements of "General Safety Rules and Regulations for the Construction Industry", as promulgated by the Construction Safety Commission of the State of Michigan including all amendments.
- 02 General Contractor and all sub-contractors shall become familiar with and comply with the "Safety and Health Regulation for Construction" as promulgated by the Occupational Safety and Health Administrator of the U.S. Department of Labor.
- 03 Safety precautions include creating buffers between the library tutor room construction and the rest of the library, buffers between the senior center construction and the community center users, buffers for building B users away from the entry vestibule construction in order to protect all building users from construction hazards.

ARTICLE 29S**CONNECTION CHARGES**

- 01 Not applicable

ARTICLE 30S**BASE BID SPECIFICATION**

- 01 Whenever the specifications call for one specific product, material application, etc. the Contractor or sub-contractor shall bid solely on that which is named. All Base Bids shall then be consistent in such a manner as to permit the best possible evaluation of all proposals.
- a. The Owner and architect in no way wish to overlook any possible alternate material that may be satisfactory as a direct substitute. *A list of proposed alternates of materials, products, methods, etc., may be proposed to, or by, the General Contractor or Construction Manager for inclusion in the proposal to the Owner. The proposal to the Owner shall state the proposed substitute and the cost savings, if any, of the substitution.* The Base Bid, however, shall be based on all items as specified.
- b. Should any real and definite hardship result in the foregoing "Base Bid" the Contractor shall communicate the facts to the Architect, and if warranted, an addendum will be issued to all bidders rectifying the condition.

ARTICLE 31S**TESTING**

- 01 All testing as called for in the specifications shall be performed by a licensed testing laboratory approved by the Architect.
- 02 The General Contractor shall be responsible for obtaining and paying for the services of the approved laboratory for testing as outlined in the following Sections of the specifications as they may apply to the project:
- a. Section 02C – Excavating, Grading and Backfill.
1. Compacted base at replacement flatwork.
- c. Section 03A – Concrete Work
1. Test cylinders of each load of concrete for footings and site concrete.
 2. Pre stress anchor test of 10% of anchor bolts.
 3. All cast in place concrete.

DIVISION 02**SITE WORK****GENERAL**

- 01 All work under this Division shall meet requirements of Division 1 and instructions and include everything necessary and incidental to completion of items outlined.
- 02 Work Included:
- a. Site clearing, topsoil stripping, sub-soil preparation, back-filling, exterior rough and finish grading.
 - b. Base Preparation for interior and Exterior Concrete Flatwork, concrete paving
 - c. Paving
 - d. Site signage for handicap and traffic control
 - e. Fencing
 - f. Removal and Demolition
- 03 Work by Others
- a. By Division 03 - General Concrete Work
 - b. By Division 03 - Sand fill for slabs on grade

SECTION 02A**SITE DEVELOPMENT****SCOPE OF WORK**

- 01 All work under this heading shall meet requirements of Division 1 and Instructions to Bidders and include everything necessary and incidental to completion of items outlined.

ORDINANCES, PERMITS, AND INSPECTIONS

- 01 The Contractor shall observe all ordinances, rules, and regulations of municipal, county, state and federal departments and agencies. He shall obtain and pay for all permits, bonds, and licenses necessary for the execution of this contract.
- 02 The Contractor shall make arrangements for such inspection that the City of Wixom, the Oakland County Drain commission or other agencies may require. The cost of such inspection will be borne by the Contractor.
- 03 The Contractor shall notify the Architect and the various responsible agencies seventy-two hours prior to the beginning of any of the work.

REPORT OF ERROR AND DISCREPANCIES

- 01 If in the course of his work, the Contractor finds discrepancies between the plans, grade stakes, and physical conditions encountered in the work, he shall immediately inform the Architect, verbally and in writing, and to suspend work in such area until authorized by the Architect to proceed.

DE-WATERING

- 01 The General Contractor shall be responsible for de-watering.
- 02 The de-watering methods employed shall prevent water and subsurface or groundwater from flowing into excavations, and flooding the project and surrounding area.

- 03 Do not allow water to accumulate in excavations. Remove water from excavations to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to the stability of sub grades and foundations. Provide and maintain pumps, well points, sumps, suction and discharge lines, and other de-watering system components necessary to convey the water away from the construction areas.
- 04 Convey water removed from excavations and rainwater to collecting or run-off areas. Do not use trench excavations for site utilities as temporary drainage ditches.

USE OF EXPLOSIVES

- 01 The use of explosives is not permitted.

EROSION AND SEDIMENTATION CONTROLS

- 01 Small areas of sidewalk and concrete stoop replacement, and fence installation, do not require County Erosion permitting. However the site contractor will maintain a clean site and protect existing manholes, parking lot and walkways from sediment.
- 02 The period of time that erodible earth material is exposed shall be kept to a minimum by prompt completion of the various construction stages, followed by final surfacing. Care shall be exercised to prevent sediments from entering the drainage system.

DISPOSAL OF EXCAVATED MATERIALS

- 01 The Contractor shall be required to legally dispose of all excess excavated materials, trash, debris and waste materials at his own expense.
- 02 Excavated clay, rubble, brush, organic matter, etc., shall be removed from site by this contractor at his expense.

FINAL CLEANUP AND ACCEPTANCE OF THE WORK

- 01 Following the completion of the work, the Contractor shall clean the entire area of any debris and/or excess or misplaced material due to his operation and obtain Architect's approval of the finished work.

DIVISION 03

CONCRETE

GENERAL

- 01 All concrete work shall be detailed and constructed in accordance with the latest specifications of the American Concrete Institute and Concrete Reinforcing Steel Institute and all materials shall conform to current standard specifications of the ASTM as may apply to the work and respective materials.

SECTION 03A

CONCRETE

SCOPE OF WORK

- 01 All work under this heading shall meet requirements of Division 1 and Instructions to Bidders and include everything necessary and incidental to completion of items outlined.
- 02 Work Included:
 - a. On site concrete walks.

MATERIALS

- 01 Cement: Shall be Portland Cement (ASTM C-150 Type 1) of American Manufacturer.
- 02 Aggregate: All aggregate shall conform to ASTM C-33 Specifications for Concrete Aggregate. Maximum aggregate size shall not exceed 3/4 of clear space between reinforcing bars or 1/5 minimum thickness of formed slabs.
 - a. Pea Gravel shall be clean washed river-run gravel, 3/8" size and conform to ASTM C33.
- 03 Combined Aggregate: Shall be of such composition as to permit between 30% and 50% to pass through a No. 4 sieve.
- 04 Water: Shall be suitable for drinking purposes.
- 05 Sand: Shall meet MDOT specification for Grade 2 porous fill containing less than 5% of particles passing a No. 200 screen
- 06 Concrete: Limits for proportions of concrete made with average materials are indicated in the following table. Trial mixtures shall establish exact proportions for all materials to be used within the limits of the table.

CLASS OF CONCRETE	MINIMUM 28 DAY STRENGTH (PSI)	MAX. W/C RATIO LBS. HOH/LB. CEMENT	NOM. AGGR. SIZE	MINIMUM CEMENT CONTENT PER CUBIC YARDS*		SLUMP	AIR CONT .%
STANDARD EXPOSED CONCRETE	4500	0.45	3/4" 1-1/2"	6-1/4 5-3/4	611 541	3" 4"	6 5-1/2

* Cement content may be reduced by 1/2 bag per cu. yd. for un-reinforced mass concrete.

** Omit air entraining agent in hardened slabs.

Additional design mixes by the supplier that meet the above performance requirements are permitted pending proper documentation and submission for Architect's approval prior to bid due date.

- 07 Admixtures: For air entraining and water-reducing shall be as manufactured by W.R. Grace Co. or Master Builders, and employed in strict accordance with the manufacturers recommendations (ASTM C260 & ASTM C494, Type A). Air content in air entrained concrete delivered shall be +/- 1-1/2 percent. Non-corrosive, non-chloride accelerator shall be "Accelguard" by The Euclid Chemical Co. (ASTM C494, Type C or E). No admixtures containing chloride ions are permitted. No fly ash shall be permitted in exterior concrete.
- 08 Expansion Joint Material: W. R. Meadows or equivalent conforming to ASTM D-1752 for interior work and ASTM D1751 for exterior work.
- 09 Curing Compound: ChemRex "Masterkure N-Seal VOC" or Sonneborn "Kure-N-Seal, Euclid Chemical "Diamond Clear VOX" or Dayton Superior "Safe Cure & Seal" (J-18).
- 10 Insulation: Foamular NGX 600 XPS 2" thickness

MATERIAL LOCATIONS

- 01 Sand: At grading course below slabs on grade.
- 02 Standard Exposed Concrete: Exterior walks, steps, stoops and curbs.
- 03 Expansion Joint Material: At all slabs abutting concrete or masonry walls.
- 04 Curing Compound: Floor slabs and walks.
- 05 Insulation: Below exterior walks.

FORM WORK

- 01 Form work shall follow ACI-347 "Recommended Practice for Concrete Form Work." Forms shall be constructed of wood planking or plywood (use plywood where concrete is exposed above grade,) or be of a re-usable metal type. Chamfer all external corners of exposed work.
- a. Permitted abrupt or gradual irregularities in formed surfaces shall be Class A as scheduled in Table 3.1 of the above reference.
- 02 All forms shall be mortar tight, rigid, strong and so constructed to prevent distortion during the placing of concrete. Due allowances shall be made for impact. Forms shall be built to given dimensions and maintained until concrete is of sufficient strength for removal. Concrete members shall have obtained sufficient strength to sustain dead and live loads without damage before removing any form work.
- 03 Provide necessary metal accessories to hold forms in correct alignment. Accessories shall be so constructed as to permit removal to a depth of at least 1 inch from the surface of the concrete. Tie rods shall be held in place by devices attached to walls. Use cone type, not wire ties or pipe.

CONCRETE

- 01 Concrete shall be transit-mixed from a plant approved by the Architect, and shall conform to ASTM Designation C-94/94M.

- 02 The transit-mix plant shall have in operation satisfactory measuring devices to assure accurate and uniform proportions of the materials as specified. Verification of this information shall accompany each individual delivery to the job site. Information shall include material quantities of the mix: moisture contents; admixes, (if any); size of the load and time of day and date when truck was loaded.
- 03 Mixing trucks shall be of an approved design to provide separate container for holding water. Mixing water shall be added ONLY at the proper time required to provide necessary consistency and not to exceed maximum slump as specified.

DEPOSITING CONCRETE

- 01 No concrete shall be placed without prior notice to Architect.
- 02 All formwork shall be cleaned, wetted down or oiled (in freezing weather) before depositing concrete. When placing concrete on grade, fill shall be smooth and firmly tamped to proper elevations. See Division 02 for compaction requirements.
- 03 Concrete shall be conveyed from mixer to the place of deposit in buggies, carts or conveyers as soon as possible after mixing. Do not use troughs. Handling of concrete shall be done in such a manner as to prevent free fall of more than three (3) feet. Always place concrete into face of previously placed material. When placing into deep forms, discharge concrete through hose or hopper directly to the level of the material being placed so as to prevent free fall.
- 04 All pours shall be continuous, keeping concrete plastic until final levels are attained. Take all necessary precautions to prevent voids and surface defects. Tamp or vibrate as conditions warrant. Penetrate previously placed layers at regular intervals when vibrating. Consult with Architect on location of all construction joints required.

SETTING ANCHOR BOLTS

- 01 Anchor bolts shall be set according to approved Steel Contractor erection drawings. Anchor bolts shall be accurately located and leveled employing services of a qualified surveyor.

CONCRETE CURBS

- 01 Provide and install concrete curbs as detailed on the drawings. Curb section shall be laid to accurate line and elevations as required.
- 02 Provide continuous #4 reinforcing rod in top and bottom of curbs.
- 03 Provide expansion joints at all tangent points; points of contact with fixed objects, and at intervals not to exceed 30 feet elsewhere.
- 04 Curbs shall receive wood float finish and maintain required lines with variations not to exceed 1/8" in 10 feet.

CONCRETE ENTRANCE SLABS

- 01 Provide suspended reinforced slabs to all entry locations. Slabs shall be placed on metal forms with void space below forms to prevent frost heave.

- 02 Reinforcing shall be #4 bars at 12" o.c. each way.

CONCRETE WALKS

- 01 Provide and install exterior walks as shown on Drawing Sh. No. A2.
- 02 Walks shall be placed on compacted sand fill. Provide expansion joints at building walls and around brick piers and at 30 foot intervals in sidewalk runs. Score walks as indicated. Provide broom finish to all walks. Walks shall be placed on 2" xps insulation.
- 03 Where indicated, warp walks and curbs to provide ADA and IBC barrier free access.

CONCRETE TESTING

- 01 General Contractor shall arrange and pay for an approved independent testing laboratory to make test cylinders of all poured-in-place concrete. Test cylinders and laboratory tests shall be made in accord with ACI Standards and ASTM Specifications. Provide a minimum of one test (consisting of three cylinders per each test) for each 50 cubic yards placed, but not less than one test per day. One cylinder shall be broken at 7 days; tow at 28 days. Cylinders shall be properly cured by the laboratory making the tests.

CURING AND WEATHER PROTECTION

- 01 Protect concrete at all times, keeping surfaces damp for at least seven days in warm weather, and keep covered as long as required in freezing weather.
- 02 Cold weather concreting work shall be performed in accordance with ACI 308.1-11 at the following minimum temperatures:
- a. Air Temperature 30-45 degrees F: Concrete temperature 60 degrees F minimum.
 - b. Air Temperature 0-30 degrees F: Concrete temperature 65 degrees F minimum.
 - c. Air Temperature below 0 degrees F: Concrete temperature 70 degrees F minimum.
 - d. Maintain concrete temperature at not less than 50 degrees for at least 7 days.
- 03 Warm weather concreting shall be performed in accordance with ACI 302.1-11 with the maximum allowable temperatures of 90 degrees.
- 04 The method of maintaining the proper temperature during hardening shall be subject to prior approval. Obtain Architects approval of any admixtures employed to facilitate cold and hot weather concreting.

POINTING AND CLEANING

- 01 Where walls, slab edges and concrete other than specified to be etched is exposed to view, fill all holes, smooth all irregularities and point smooth with mortar. Concrete shall be steel brushed clean and left in smooth even color.

GUARANTEE

- 01 This contractor shall provide a written guarantee all work under this contract shall be free of any defects in material or workmanship, not due to ordinary wear or improper use, which may develop within one (1) year from the date of acceptance of the work.

SECTION 05H**LIGHT GAUGE STEEL FRAMING****SCOPE OF WORK**

- 01 The work under this Section shall provide all materials, labor, protections and appliances necessary to furnish, deliver, and install cold rolled metal studs and light gauge metal framing indicated on the Drawings and noted herein.
- 02 Work by Others:
- a. By Section 09C – Interior Gypsum Board Installation.
 - b. By Section 07C – Fluid Applied Infiltration Barrier.
 - c. By Section 07C – Spray Foam Insulation.
 - d. By Section 07K – Subgirt Metal Rails.
- 03 Work furnished by Others for installation by this Section:
- a. By Division 04 - – Sure Tie Wire slots (Part #4522).

MATERIALS

- 01 All structural members shall be as manufactured by Unimast Inc., and designed in accordance with American Iron and Steel Institute (AISI) Specification for the Design of Cold-Formed Steel Structural Members and conform to the requirements of ASTM C645 with minimum yield strength of 50ksi for SJ studs and 33ksi for CR runners. All structural members shall be zinc coated meeting ASTM A653.
- a. Accepted Alternate Manufacturers: U.S. Steel Super C Steel Framing, Clark-Western, Dietrich Metal Framing, Custom Stud, Inc.
- 02 Metal Framing System:
- a. Exterior: not applicable.
 - b. Interior:
 1. Studs - ST, sizes as indicated on drawings, gauges: 3-5/8" up to 9'-0" high - 25 gauge; 3-5/8" 9'-0" to 16'-0" - 20 gauge; 3-5/8" over 16'-0" – 18 gauge. 6" any height - 20 ga., 8" any height - 18 ga., Furring shall be 25 gauge.
 2. Runners - CR25 - sizes as indicated on drawings.
 3. Steel Framing: Unimast SJ members for load-bearing wall applications.
 4. Furring Channels – Z-furring channels, 1½" deep; hat channels 7/8".
 5. Flexible framing – 20 ga. hot dipped galvanized steel ASTM A653 Structural Grade 33, : as manufactured by Flex-Ability-Concepts. (www.flexc.com)
 - a. Flexible Tracks: Flex-C Trac, width as required, and Flex-C Angle, with slideable strap
 - b. Flexible Arch: Flex-C Arch, width as required.
 6. Shaft wall studs – CH type, 20 ga.
 7. Strap Blocking (when used) shall match gauge of studs receiving blocking.
- 03 Fasteners: Per Selector Guide for USG Screws - for conditions of use.
- 04 Sill Sealer: Continuous fiber glass roll, 1/2" thick, width to suit wall.

- 05 Rough Bucks and Blocking: See “Materials” - Section 6A for framing lumber, plywood sheathing, and preservative treated material requirements.
- 06 Non-combustible Wall Sheathing: ½” USG Securock or Dens-Glass Gold as manufactured by Georgia Pacific. Gypsum Sheathing manufactured in accordance with ASTM C1155 with glass mats on both sides and long edges, water resistant treated core. Note: This material contains filament fiberglass – utilize gloves, eye protection and respirator. Follow manufacturer’s written instructions.
- 07 Sheathing: Shall be APA Rated Plywood Sheathing.
- a. Roof Sheathing: Shall be 40/20 Exterior Exposure 1, 19/32” thick sized for spacing.
 - b. Wall Sheathing: Shall be 32/16 Exterior Exposure 1, 15/16” thick sized for spacing.
 - c. Floor Sheathing: Shall be Rated Sturd-I-Floor Exterior Exposure 1, 23/32” thick underlayment sized for spacing, T&G net width 47 ¼”.
- 08 Infiltration Barrier: Shall be high density polyethylene fiber “breathing” type barrier, Tyvek Commercial Wrap (Stucco Wrap at EIFS work) Barricade Building Wrap, meeting ICBO ES Acceptance Criteria for Weather-resistive Barriers (AC38) and the drainage requirements of the ICBO ES Acceptance Criteria for Exterior Insulation and Finish Systems (AC24).
- a. Alternate Manufacturer: Dow Chemical Co., Styrofoam Weathermate.
 - b. Alternate accepted product: StoGuard spray on barrier.

MATERIAL LOCATIONS

- 01 Metal Framing System: New partitions shown on drawings.
- 02 Metal Furring: Where needed for leveling, millwork panels, soffits, and where shown on drawings.
- 03 Sill Sealer: Under all sill channels of exterior stud walls.
- 04 Rough Bucks and Blocking: Edges of new work, partitions, new windows, openings, and millwork.
- 05 Flexible Framing: Where needed for curves, soffits or stepped connections.
- 06 Shaft Wall Studs: At rated shafts where occurring.
- 07 Infiltration Barrier: Not applicable.

FABRICATION

- 01 All framing components shall be cut squarely for attachment in a manner to prevent racking and to minimize distortion while lifting and transporting.
- 02 In all doubled jamb studs and doubled headers not accessible to insulation contractor, provide insulation equal to that specified under Section 07C.

INSTALLATION

- 01 General: All framing components shall be plumb, aligned and leveled. Fastening of components shall be with self-drilling screws or welding. Screws and welds shall be of sufficient size to insure the strength of the connection. Wire tying of the components shall not be permitted. All welds shall be touched up with a zinc-rich paint.

- 02 Walls: Provide metal stud partitions and framing where indicated and required to complete the partitioning and enclosure system. Studs shall generally be on 16" centers with continuous sill and head runners. Anchor runners to floor and ceiling structure with power driven fasteners. Provide bead of acoustical sealant to concrete floors prior to securing runners to floor (sill sealer at exterior walls).
1. Secure all studs to runners with four (4) pan head or low-profile screws. Position studs no more than 2" from all door jambs, abutting partitions, partition corners, etc. Anchor all studs adjacent to above conditions with positive screw engagement to runner flanges thru stud flanges. Studs at openings shall be heavy gauge. Spot grout jamb anchor clips.
 - b. Cut sills and headers form joist members and install openings. Securely attach runners to supporting studs on each side of opening and install cut to length studs between runners.
 - c. Where structural deflection is a consideration provide slip or slotted track detail suitable to accommodate the anticipated deflection. Detail shall be as standard with the manufacturer of the studs. Where fire walls meet metal roof decking provide movement system to meet UL HW-D-0060 requirements for fill and seal at deck. At exterior curtain walls provide deflection clips where required and/or shown on the drawings.
 - d. Fit all required blocking between studs to receive work of other trades. Provide rough bucks as required at all door and window openings.
- 03 Ceiling Drops: Provide metal framing at all ceiling drops over cabinets, mechanical duct and pipe enclosures, light cove details, structural steel enclosures, and other miscellaneous framing to complete the enclosure system. Framing members shall generally be spaced in relationship to adjacent wall and ceiling framing. Provide stop beads, corner beads and control joints as required to complete the drop details.
- 04 Load Bearing Walls: Axially loaded studs shall be installed so the ends are positioned against the inside of the runner track web prior to fastening and shall be attached to both flanges of the upper and lower runner tracks. Complete, uniform and level bearing support shall be provided for the bottom runner. Framing of wall openings shall include headers and supporting studs. Resistance to bending and rotation about the minor axis shall be provided by horizontal strap and blocking or cold rolled channel bracing. Provide flat strap cross bracing where required for stability Provide additional studs where required to resist vertical loads.
- a. Shear Walls where designated on the drawings shall be provided for frame stability and lateral load resistance. Additional studs, when necessary, shall be positioned and adequately attached to the structure to resist the vertical components of the loads.
- 05 Joists: Uniform and level joist bearing shall be provided at the foundation walls by means of shims and/or non-shrink grout. Joists shall be located directly overbearing studs, or a load distribution member shall be provided at the top of the bearing wall. Framing of wall openings shall include headers and supporting studs. Resistance to bending and rotation about the minor axis shall be provided by horizontal strap and blocking or cold rolled channel bracing. Provide flat strap cross bracing where required for stability. Provide additional studs where required to resist vertical loads. Web stiffeners shall be provided at reaction points and/or points of concentrated loads. Joist bridging shall be provided as required and shown on the drawings.
- a. Additional joists shall be provided under parallel partitions when the partition length exceeds one-half the joist span, and around all floor and roof openings which interrupt one or more spanning members.
 - b. End blocking shall be provided where joist ends are not otherwise restrained from rotation.

06 Insulation:

- a. Fasten panels to each support with fasteners spaced 12 inches on center at perimeter and 16 inches on center in panel field. Set back perimeter fasteners 3/8" from edges and ends of panel units. Drive fasteners to bear tight and flush with surface of insulation. Do not countersink. Perimeter fasteners can be detailed to bridge the gap of abutting board joints due to the 1.75" diameter of the washer used to fasten the board to the studs. Maximum of two board joints may be bridged per fastener.
- b. Install flashing joint tape at end and edge joints with sufficient hand pressure to ensure seal and in accordance with sheathing manufacturer's joint sealing recommendations.
- c. Install flashing tape behind wall tie and mechanical fastening assemblies for rain screen claddings.
- d. Seal sheathing joints and penetrations of sheathing in accordance with sheathing manufacturer's joint and penetration sealing recommendations.
- e. After base flashing, which may include a termination bar running horizontally along the top edge of the flashing, is installed on exterior of insulated sheathing, install WEATHERMATE™ Flashing 6 inch or 9 inch", high-density polyethylene (HDPE) film facer with 100% butyl rubber adhesive to the exterior sheathing and lapped over the top edge of the base flashing.

07 Spray Polyurethane Foam

- a. Preparation
 1. Mask and cover adjacent areas to protect from overspray.
 2. Apply primers for special conditions as recommended by manufacturer.
 3. Cover wide joints with transition sheet membrane as specified in Section 07 27 50
 4. Clean work area prior to application of sprayed insulation.
 5. Verify substrate temperature meets manufacturer's requirements for specific formulations used.
 6. Ensure that all stud cavity fire-stopping is installed prior to application of spray foam.
- b. Application: Spray apply polyurethane foam in accordance with ASTM C1029 and manufacturer's installation guidelines; complying with preparation methods outlined in 3.4.
 1. Apply spray polyurethane foam by picture framing around the interior studs at the insulated sheathing – steel stud interface and one pass across all board joints and penetrations.
 2. Finish applying spray polyurethane foam with one pass not exceeding 1.5 inches in thickness. Two passes are acceptable to reach maximum thickness of 1.5 inch.
 3. Avoid formation of sub-layer air pockets.
 4. Apply spray polyurethane foam in overlapping layers, in a manner to obtain a smooth, uniform surface. Total thickness as indicated.
 5. Maintain [3 inch] [75 mm] clearance around chimneys, heating vents, steam pipes, recessed lighting fixtures and other heat sources.
 6. Do not apply spray polyurethane foam to inside of exit openings or electrical junction boxes.
 7. Maintain a continuous layer of spray foam from floor to floor to roof to complete air barrier.

- c. Field Quality Control. Submit spray polyurethane foam field inspection and test reports and perform all field testing as established in the manufacturer's specifications.
- 08 Infiltration Barrier: Cover exposed exterior surface of sheathing with weather barrier securely fastened to framing immediately after sheathing is installed.
- a. Start weather barrier installation at a building corner, leaving 12" of weather barrier extended beyond corner to overlap.
 - b. Install weather barrier horizontally starting at lower portion of wall surface.
 - c. Provide minimum 6 inches overlap at horizontal and vertical-wrap seams in a shingle manner to maintain continuous downward drainage plane and air and water barrier.
 - d. Seal seams with building wrap tape per manufacturer's recommended installation instructions. Shiplap horizontal seams in weather barrier to facilitate proper drainage.
 - e. Cover all openings and trim out per manufacturer's directions. Use all fasteners in accordance with manufacturer's guidelines.

SHOP DRAWINGS

- 01 Prior to fabricating of framing, this contractor shall submit the following for Architect's review.
- a. Fabrication and erection drawings. Drawings shall include the complete wall and ceiling systems and all ceiling drops and enclosures including. Drawings will indicate size and gage designations, number, type, location, and spacing. Indicate supplemental strapping, bracing, splices, bridging, accessories, and details required for proper installation.
 - b. Product data and installation instructions for each item of cold-formed metal framing and accessories.

GUARANTEE

- 01 This Contractor shall guarantee all materials and workmanship under this heading for a one (1) year period from the date of acceptance.

DIVISION 06

CARPENTRY

SCOPE OF WORK

- 01 All work under this heading shall meet requirements of Division 1 and Instructions to Bidders and include everything necessary and incidental to completion of items outlined.
- 02 Work included, but not limited to:
 - a. Framing, temporary frames, wood blocking, rough bucks, wood furring, sheathing, etc.
 - b. Plastic laminate cabinets, counters and window stools, trim and millwork.
 - c. Wood Blocking at edges and Window Openings.
- 03 Work furnished by other Divisions and installed by this Division:
 - a. By Section 08A-Finish Hardware
 - b. By Section 08B-Metal Doors and Frames
- 04 Work furnished by other Divisions:
 - b. By Section 08C-Glazing for hollow metal or wood doors.
 - c. By Section 05H-Rough Bucks and Blocking at light gauge steel framing

SECTION 06A

GENERAL CARPENTRY WORK

GENERAL

This Section includes all work necessary and incidental to the rough carpenter work and shall be executed in a manner consistent with the best practices of the trade.

MATERIALS

- 01 Framing Lumber:
Framing lumber shall be Douglas Fir – Larch, Douglas Fir – South or Hem-Fir meeting the scheduled requirements as described in Western Lumber Grading Rules:

Lumber Schedule:

Use	Bending Stress Fb	Horizontal Shear Fv	Compression Fc	Modulus of Elasticity
Joists, Lintels. Headers, 2x6 and Larger Blocking	1100psi	150psi	405psi	1,500,000 ³
Studs, 2x4 Blocking	675psi	150psi	405psi	1,200,000 ³
Structural Decking Single Member	1400psi		405psi	1,500,000 ³
Structural Decking Repetitive Member	1600psi		405psi	1,500,000 ³

Structural Wood Decking shall be tongue and groove (double tongue on 3 & 4" deck), vee joint, Southern Pine is an accepted species for wood decking. Maximum moisture content shall be 15%. Decking shall be furnished with stain/sealer matching laminated finish

- 02 Appearance Grade Lumber: Red Oak Select & Better, match existing.
- a. For clad members furnish material suitable for maintaining straight, accurate lines to receive cladding. Finger jointed material not accepted.
 - b. All wood siding shall be acclimated to the surrounding air at the site prior to application. Acclimating procedures shall be in accordance with the WWPA recommendations.
- 03 Preservative Treated Material: Shall be pressure impregnated in accordance with National Institute of Standards and Technology (NIST):
1. PS 1, U.S. Product Standard for Construction and Industrial Plywood.
 2. PS 20, American Softwood Lumber Standard and American Wood Preservers Association Standards American Wood-Preservers' Association (AWPA):
 1. Standard C1, All Timber Products – Preservative Treatment by Pressure Process.
 2. Standard C9, Plywood
- All material shall bear an American Wood Preservers Bureau Quality Control Mark. Lumber shall be kiln dried to 19% or less for lumber, 18% or less plywood, after treatment. Material shall meet retention requirements for above ground and for ground contact as employed.
- Preservative: Copper azole in accordance with AWPA Standard 3B for decking, deck joists and railings, 4A for members with ground contact or freshwater contact.
- 04 Plywood: Shall be APA Rated Plywood Sheathing or plywood blocking where shown on the drawings.
- a. Roof Sheathing: Shall be 40/20 Exterior Exposure 1, 5/8" thick sized for spacing.
 - b. Wall Sheathing: Shall be 32/16 Exterior Exposure 1, 1/2" thick sized for spacing.
 - c. Floor Sheathing: Shall be Rated Sturd-I-Floor Exterior Exposure 1, 3/4" thick underlayment sized for spacing, T&G net width 47 1/4".
 - d. Wood Blocking: Shall be Exterior Exposure 3/4" thick minimum, laminated panels where shown or required.
- 05 Infiltration Barrier: Shall be high density polyethylene fiber "breathing" type barrier, Tyvek Commercial Wrap (Stucco Wrap at EIFS work) Barricade Building Wrap, meeting ICBO ES Acceptance Criteria for Weather-resistive Barriers (AC38) and the drainage requirements of the ICBO ES Acceptance Criteria for Exterior Insulation and Finish Systems (AC24).
- a. Alternate Manufacturer: Dow Chemical Co., Styrofoam Weathermate.
 - b. Alternate accepted product: StoGuard spray on barrier, Grace Vycor enV-S.
- 06 Adhesive: Adhesive: OSI GreenSeries construction adhesive meeting ASTM E72 and D3930. V.O.C.content < 2 g/L (1% by weight).
- 07 Wood Grounds: Utility grade White Pine or Fir.
- 08 Fire Retardant Material: Shall meet one of the following tests:
- a. ASTM E84
 - B. UL723
 - c. NFPA 255.
- and bear the FRTW label on individual members. Reduction in design values for fire retardant material shall meet National Design Specification for Wood Construction minimum adjustments
- 09 Metal Accessories: Shall be Simpson Strong-Tie Co., Inc. Accessory finish shall be Simpson ZMAX (G185), Post Hot-Dip Galvanized (HDG) or SST300 Stainless Steel. Stainless steel only is required when type of preservative of members being connected is unknown.

- 10 Spray Caulk: Eco Seal system by Knauf. 2-part airless spray to seal all rough carpentry joints before drywalling.
- 11 Expansion Joint: MM Systems Series X-M extruded aluminum with baked enamel finish, color as selected by Architect.

MATERIAL LOCATION

- 01 Appearance Grade Material: Where trim material is shown on drawings and renderings.
- 02 Framing Lumber: Where needed for blocking, door support and as shown on drawings.
- 03 Preservative Treated Material: Wherever framing material, blocking, etc. comes in contact with concrete or masonry and/or where it is exposed to weather.
- 05 Plywood Blocking: At edges; windowsills.
- 06 Infiltration Barrier: Not applicable.
- 07 Adhesive: Where required for rigidity of framing or backing.
- 08 Fiber Cement Material: Not applicable.
- 09 Spray Caulk: Where framing material has a joint; at the top & bottom sills, between the studs and sheathing.

TEMPORARY CLOSURES

- 01 This Contractor shall provide weather tight enclosures where necessary over exterior and interior openings.
- 02 Provide temporary doors as required for access to building. Provide locks as necessary for building security.
- 03 Provide temporary construction barriers and weather barriers at auto door and patio door replacements and other department area barriers to allow continued use of the city offices, senior center, community center and the library.

PROTECTION OF WORK

- 01 This Contractor shall provide such coverings as required to protect woodwork from damage of any nature.
- 02 This Contractor shall cover all types of stonework subject to damage.

ROUGH CARPENTRY AND FRAMING

- 01 Install hollow metal door frames furnished by Division 08 where occurring in stud walls and masonry partitions. Frames shall be set accurately and rigidly secured to studs and floor slab or masonry per frame manufacturers' directions.
- 02 Provide solid blocking at all door bumper and stop locations, grab bars.
- 03 Install wood blocking at parapet walls where shown. Form to shapes shown providing level and true lines. Recess bolts and nuts flush with surface of blocking where required. Coordinate with Roofing Contractor re: metal copings.
- 04 Provide 2x continuous blocking to receive coat rack and shelving installation where indicated on floor plans.
- 06 Sheathing shall be applied with long dimension across studs with alternate sheets staggered. Screw nail at 6" o.c. along panel edges and 12" o.c. at intermediate supports with 1" bugle head screws.
- 07 Install draft stopping and fire stopping where indicated on Roof Framing Plan to meet building code requirements. Draft stopping may be either 1/2" gypsum board or 3/8" C-D plywood. Fire stopping in walls and overhangs shall be two thicknesses of 1-inch lumber with broken lap joints, one thickness 23/32" C-D plywood or 1/2" gypsum sheathing with joints backed by 23/32" C-D plywood, or of 2-inch lumber installed with tight joints.
- 08 Install infiltration barrier over exterior wall sheathing throughout prior to installation of windows. Use maximum available material width and install in accordance with manufacturers detailed instructions. Overlap adjacent rolls a minimum of 8". Tape barrier to foundation wall and seal all lap joints with 3M sheathing tape. Maintain completeness of the barrier throughout the construction period prior to final enclosure by mending all torn material and taping over all holes. When using spray on product follow manufacturers detailed specifications.
- 09 Install wood trim and fascia members throughout. Maintain accurate lines through length of fascia and provide flush jointing of members. Where employed install all cementitious material in strict accordance with manufacturers requirements.

ROUGH HARDWARE

- 01 Provide and set all anchors, ties, bolts, nails, etc., required to properly carry out the Carpenter work. Anchors built into existing masonry walls will be provided and installed by this Division.
- 02 All connectors, bolts, washers, nuts, screws, nails for pressure treated material shall be hot dipped galvanized or stainless steel to prevent excessive corrosion.

GUARANTEE

- 01 This Contractor shall guarantee that all work executed under this contract shall be free from defect in materials and workmanship for a one (1) year period after date of acceptance.

SECTION 06B**FINISH CARPENTRY AND MILLWORK****SCOPE OF WORK**

- 01 This Section includes all work necessary and incidental to finish carpentry, countertops and millwork.
- 02 Work by Others:
- a. By Division 15 - Installation of Sinks in Countertops.
 - b. By Section 06A – Blocking within walls.

QUALITY ASSURANCE

- 01 For work described in Millwork Schedule as "Special", the "Quality Standards" of the Architectural Woodwork Institute shall apply and by reference are hereby made a part of this specification. Any reference to Premium, Custom or Economy in this specification shall be as defined in the latest edition of the Architectural Woodwork Standards".
- 02 For work described in Millwork Schedule as "Prefab(ricated)" the performance standards of the ANSI/KCMA Specification A161.1 shall apply.
- 03 Finished carpenter work shall be executed by trained personnel and include all items necessary for proper operation and appearance. Work shall be completed in a manner consistent with the best practices of the trade.
- 04 Stonework for countertops shall be in accordance with Industry Standards and Practices as set forth by the Marble Institute of America.

MATERIALS

- 01 Interior Wood Trim: Clear Select Red Oak.
- 02 High Pressure Decorative Laminates: For cabinet and case work, high-pressure melamine laminate in accordance with NEMA LD3 Standards. For counter tops, back splashes and edging (AWI defined "Exposed") - General Purpose Grade (Grade HGS, Nominal Thickness: .048"); for vertical surfaces, cabinet liner (AWI defined "Semi-exposed") - Vertical Grade (VGS, Nominal Thickness: .028 thick.
- a. Finishes shall be standard polished or matte.
 - b. Colors and patterns shall be as selected by the Architect from manufacturer's standard colors and textures other than metallic or special surfaces.
 - c. Approved Manufacturers: Nevamar, Formica, Wilsonart.
- 03 Solid Surfacing Material: Shall be "Corian" provided by Dupont. Thicknesses shall be 1/2", 3/4" and 1" as detailed on drawings.
- a. Finishes shall be satin.
 - b. Colors shall be as selected by Architect from standard colors.
 - c. Sinks, lavatories and shower bases where called for shall be selected from manufacturer's standard available sizes.
 - d. Approved alternate manufacturers: Avonite, Meganite, "Gibraltar" by Wilsonart.

- 04 Quartz: Shall be engineered quartz of approximately 93% natural quartz blended with advanced polymer resins and color fast pigments. Material shall be of thicknesses as shown on the drawings. Colors selection shall be from standard colors or as specified in Interior Finish Schedule.
- 05 Composite Panel Core Material: Shall have physical and mechanical properties, screw- holding capabilities, thickness tolerances and formaldehyde emission limits meeting ANSI A208.1-1999 Standard Grade H-3 for particleboard or ANSI A208.2-2002 MDF Grade160 for medium density fiberboard.
- 06 Drawer Stock: Metal sides. Grass or Blum. 3 heights; correspond with drawer fronts on millwork elevations. Length corresponds with cabinet depth.
- 07 Plywood: Shall be APA Standards Grade A-B (A-D where D face is concealed), generally 3/4" thickness.
- 08 Flush Wood Swing Gate Shall conform to the latest edition of the Architectural Woodwork Standards Section 9. Accepted Manufacturers: Algoma, Eggers, Graham, Marshfield, A & F Wood Products manufacture conforming to ANSI/NWMA I.S.1. (Eggers designations used) Doors shall meet Quality Standards Illustrated of the American Woodworking Institute, Custom Grade.
- a. Cores: UF-free particleboard, conforming to ANSI STD 208.A LD-2.
 - b. Face Veneer: 1/8" High Pressure Laminate.
 - c. Cross Banding: 1/16" minimum thickness hardwood.
 - d. Thickness: 1 - 3/4".
 - e. Edges: #5 Edge.
 - f. Glazing Detail: Standard.
 - g. Machining: Provide factory machining for hardware as scheduled in Section 08A.
 - h. Guarantee: Life of Installation, interior; two (2) years exterior.
- 09 Panel Doors: Shall be Eggers (Styles used), Sun-Dor-Co. Pinecrest, Northern Specialtie.
- a. Type: E 114, E 201, E 801, E 803 and specials as shown.
 - b. Face Veneer: Sliced Red Oak (at Stained & Varnish Locations).
Paint Grade Poplar or Pine (Painted Locations).
 - c. Thickness: 1 3/4".
 - d. Factory Finish: Primed (Painted Locations Only).
 - e. Glazing: 1/2" tempered insulating glass - exterior doors.
 - f. 1/4" tempered clear float glass - interior doors (beveled at special folding doors)
 - g. Glazed openings shall provide minimum 13 1/2" bottom rail distance.
- 10 Solid Paneling: MDF medium density fiberboards from recognized manufacturer.
- 11 Wood Veneers: Shall be as distributed by Oakwood Veneer Company
www.oakwoodveneer.com Sheet size shall be: 4' x 8', 4' x 10', 4' x 12'
Wood Species: Cherry or Maple or Red Oak, Economy B Grade or Select A Grade.
- a. Backing: Paperbacked – 10Mil or Bubble Free Veneer or 3M Pressure Sensitive Adhesive backing.

MATERIAL LOCATIONS

- 01 Interior Wood Trim: Where shown on drawings.
- 02 Plastic Laminates: Where shown on drawings.
- 03 Solid Surfacing Material: Where shown on drawings.
- 04 Quartz countertop: Where shown on drawings.
- 05 Particle Board or Medium Density Fiberboard: Millwork structure.
- 06 Wood Doors: Where shown on drawings.
- 07 Solid Paneling: Where shown on drawings.

CASEWORK

- 01 Casework for High Pressure Laminate: for Millwork and all countertop, edging and back splash work shall meet AWI Quality Standard 400B, Architectural Laminate Clad Cabinets, Custom Grade, minimum.
- 02 Construction Details: Shall conform to Flush Overlay (or Reveal Overlay or Reveal Overlay on Face Frame) design with cabinet surfaces as defined under AWI Specification Division 400 G-1 supplied as follows:
 - a. Exposed Surfaces, back up surfaces: General Purpose Laminate (.048" thick).
 - b. Semi-Exposed Surfaces: General Purpose Laminate (.028" thick).
 - c. Concealed Surfaces: Painted or sealed.
 - d. All door and drawer fronts and counter tops shall be edge laminated prior to applying face veneer.
 - e. All inside corner cut-outs shall have radius cut.

CABINET HARDWARE

- 01 For "Special" Millwork furnish at each door:
 - a. Hinges: Flush overlay, offset, institutional, heavy-duty hinges, 2 per door. 3 per door at oversized.
 - b. Door Catches: Ten-pound pull, aluminum magnetic type (Weber-Knapp #6988, Epcos #1000 or equal). Two fourteen-pound pull catches for doors over 72" high.
 - c. Pulls: 3" wire pulls, Epcos MC-402-3 (Colonial, Stanley). Finish: stainless steel (SS)
- 02 For "Special" Millwork furnish at each drawer:
 - a. Pulls: 3" wire pulls, Epcos MC-402-3 (Colonial, Stanley). Finish: Stainless Steel (SS)

- b. Drawer Slides (24" maximum width): Knappe and Vogt #8400, full extension, 100-pound capacity, or Grant equal.
 - c. Optional Drawer Slides: Grass America Zargen Series, full extension, 100# capacity may be used in lieu of specified Drawer Sides and Drawer Slides. Size to suit drawer depths as shown on the drawings. (1945 Heide: 800-289-2237 or J. Kaltz: 248-541-8800) (www.grassusa.com).
- 03 Furnish at all ADA required, US M vanity brackets, steel and stainless steel brackets: material as manufactured by A& M Manufacturing, Mt. Joy PA. www.AandMHardware.com. USA Manufactured,
- 04 Where indicated on the interior elevation drawings provide Knappe and Vogt 984N
- 05 Carpet Casters at Portable Cabinets: Outwater Plastic Industries "Madrid" plate type, 2-1/2" mounting height, CHR finish, 300-pound load rating.
- 06 Coat Hooks : Magnuson Group K-55C, cast aluminum with satin silver finish.

MILLWORK CONSTRUCTION

- 01 General: All parts shall be mill finished, flush type fronts overlapping ends. Exposed ends shall be flush construction and shall match fronts.
- 02 Doors and drawer fronts shall be veneered both sides with plastic laminate. Edges shall be veneered where exposed to view or contact. Doors and drawer fronts shall be 5/8" core. Drawer construction shall be as detailed.
- 03 Lead edge of all plastic laminate counter tops shall have face depth as detailed, minimum - 1-1/2". Provide 1" radius on all exposed corners.
- a. HGS high-pressure decorative laminate or 3mm PVC band with .125 radius top and bottom corner.
- 04 High pressure decorative laminate counter tops and back splashes shall be self-edged and veneered on 3/4" material with all edges returned in plastic laminate. Back splash shall be secured to countertop and provided with top edge oversize for scribing or be field applied after scribing to adjacent surfaces. Work shall generally be done without metal edges, coves, etc. Full height back splashes may be adhered to wall material where conditions permit a finished installation.
- 05 Solid phenolic, epoxy resin, and natural/engineered stone countertops shall be built up with butt splash waterfall edge, square edge at splash.
- 06 All shelving shall be adjustable with metal standards and brackets.

FINISH HARDWARE

- 01 This Contractor shall install finish hardware and security hardware as provided by Section 08A-Finish Hardware and Section 08B- Electronic Security Hardware. He is specifically referred to those Sections of the Specifications for his responsibility in regard to the hardware.

02 All finish hardware shall be fitted and then removed until painter has finished his work, at which time it shall be permanently set.

03 Do not fabricate until Architect has reviewed shop drawings.

INSTALLATION

01 Installation shall be made by trained personnel and complete in every respect. It shall include all necessary items required for the proper operation and appearance.

02 Install all units and items as located under "Millwork Schedule".

03 This Contractor shall be responsible to make certain that millwork is not delivered to the jobsite until the building and storage areas are sufficiently dry and proper temperatures be maintained to insure that millwork will not be damaged by excessive changes in temperature and moisture content. A minimum of 72 hours shall be allowed for any material to acclimatize.

04 All sinks shall be furnished and installed by the Mechanical Contractor. Provide necessary cutouts in counter tops for items furnished and do all that is necessary to coordinate the installation with the Mechanical Contractor. Coordinate any installation details of ceramic tile with Tile Contractor.

05 All units shall be carefully plumbed, leveled and all hardware left in perfect working order. All items shall be carefully cleaned prior to turning over to the Owner. Follow laminate manufacturer's instructions on methods of cleaning laminate surfaces.

06 Hand and fit all wood doors. Provide plumb and accurate alignment with uniform clearance at frame. Follow door manufacturer's instructions on guarantee relative to storage, handling, installation, etc.

07 Install all standing and running wood trim, and wood rails where shown on drawings.

08 Hang all hollow metal doors. Provide proper clearances throughout. Install rubber bumpers after painting is complete.

09 All solid surfacing material shall be installed strictly in accordance with manufacturer's instructions. Countertops shall have surface-to-surface edge assembly, 1 1/2" minimum edge depth with bull-nose edges. Backsplashes shall have square joints with top member scribe piece. Integral sink and lavatory bowls shall have flush, bull-nose edges.

10 All quartz shall be installed in strict accordance with Industry Standards and Practices as set forth by the ISFA. All quartz shall be anchored in accordance with the approved shop drawings. Any fasteners used in construction of temporary protection fixtures shall be noncorrosive. All cleaning methods shall be tested on material samples prior to application to the stone installation to assure there are no adverse affects of the cleaning method or products to the stone surface. Quartz shall be cleaned after installation and all pointing or caulking is complete. All dirt, excess mortar, weld splatter, stains, and other defacements shall be removed. All cleaning methods shall be in accord with ISFA standards.

SAMPLES

- 01 At the Architects request sufficient size samples of interior wood trim, plastic laminates, finished plywood, wood door veneers, solid surfacing and other finish materials shall be submitted for approval through the General Contractor.
- 02 The Granite Contractor shall submit through the General Contractor, for approval by the architect, at least two full range sets of samples of the various kinds of granite specified. Sample submittals shall represent the full range of color and markings inherent in the material proposed for fabrication of the project. Full range sample sets must be reviewed and approved as a complete set and not as individual pieces. Full range sample sets shall be indicative of the true character, including any natural variation in background and foreground color, veining or graining, of the material currently available and proposed for use on the project. The sample size shall be 1'-0" x 1'- 0" minimum, 2'-0" x 2'-0" minimum for heavily veined or varied stones, and shall represent approximately the finish, texture, and anticipated range of colors to be supplied.

SHOP DRAWINGS

- 01 Submit detailed Shop Drawings of the work for Architect's approval. Drawings shall include all equipment furnished, special conditions of installation.
- 02 The millwork manufacturer is responsible for details and dimensions and shall show on his shop drawings all required for field dimensions **beyond** his control. The General Contractor and the Millwork manufacturer shall cooperate to establish and maintain these field dimensions.
- 03 When granite is furnished the drawings shall include the general layout, jointing, anchoring, stone thickness and all connection details. Sink cutouts shall be sized and located on the drawings.

GUARANTEE

- 01 This Contractor shall guarantee that all work executed under this contract shall be free from defect in materials and workmanship for a one (1) year period after date of acceptance.

DIVISION 08**HARDWARE, DOORS, WINDOWS, AND GLASS**

01 All work under this heading shall meet requirements of Division 1 and Instructions to Bidders and include everything necessary and incidental to completion of items outlined.

02 Work Included, but not limited to:

- a. Finish Hardware.
- b. Glass and Glazing.
- c. Store Front Material.

SECTION 08A**FINISH HARDWARE****SCOPE OF THE WORK**

01 This Finish Hardware Supplier shall furnish all finish hardware required in connection with the work except that which is specifically called for under the other Divisions of the Specifications.

02 Work by Others:

- a. By Section 06B-Hardware for all millwork items.
- b. By Section 08D-Hardware for store front items.
- c. By Division 16 – Power to Electronic Hardware.

03 Work Furnished to Others for Installation:

- a. To Section 06B- All Finish Hardware except for store front material
- b. To Section 08D- Hardware for all store front items.

PACKING AND DELIVERY

01 All hardware shall be securely packed. Each package shall be clearly identified with an item number and the corresponding set number used in the Door Schedules.

02 The Finish Hardware Supplier shall deliver all hardware to the job site and obtain a receipt from the Carpenter Contractor for all items delivered in each shipment. He shall inform the Carpenter Contractor that all discrepancies between the hardware delivered and the list accompanying same shall be reported immediately and that the Carpenter Contractor shall be responsible for all missing items not reported.

REQUIREMENTS OF REGULATORY AGENCIES

01 All hardware furnished in connection with Doors bearing underwriters labels or where necessary to meet special requirements shall be strictly in accordance with conditions established by governing authority and subject to the approval of that authority.

02 All hardware shall comply with the accessibility guidelines of the Americans with Disabilities Act of 1990, effective January 26, 1992, State of Michigan Barrier-Free Code, Current Edition, IBC, NFPA 101, NFPA 80 and UBE Code - all Current Editions. Provide only hardware that has been tested and listed by UL for types and sizes of doors required and complies with requirements of door and door frame labels.

HARDWARE SUPPLIER

- 01 Shall be an established firm dealing in contract builders' hardware. The firm must have adequate inventory, qualified personnel on staff and be located within 100 miles of the project. The project requires the employment an Architectural Hardware Consultant (AHC).

ELECTRIFIED DOOR HARDWARE SUPPLIER

- 01 Shall be an experienced door hardware supplier who has completed projects with electrified Door hardware similar in material, design, and extent to that indicated for this project, whose work has resulted in construction with a record of successful in-service performance, and who is acceptable to manufacturer of primary materials.
- 02 Shall prepare data for electrified door hardware, including shop drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this project.
- 03 Shall have experience in providing consulting services for electrified door hardware installations

INSTALLATION

- 01 Locate hardware pieces from finish floor to center line of item per door and frame manufacturers' standard location.
- 02 Install hardware according to manufacturers installations and template dimensions. Attach all items of finish hardware to doors, frames, walls, etc. with fasteners furnished and required by the manufacture of the item.
- 03 Continuous gear hinges attached to hollow metal doors and frames and aluminum doors and frames: 12-24 x 1/2" #3 Phillips Keenform self-tapping. Use #13 or 3/16 drill for pilot. Continuous Gear Hinges require continuous mortar guards of foam or cardboard 1/2" thick x frame height, applied with construction adhesive. Install weather-strip gasket prior to parallel arm closer bracket, rim exit device or any stop mounted hardware. Gasket shall provide a continuous seal around perimeter of door opening. Allow for gasket when installing finish hardware. Door closers will require special templates. Exit devices will require adjustment in backset.

KEYING

- 01 All cylinders shall be master keyed to the Owner's requirements. A meeting shall be arranged with the Owner to establish a keying system prior to ordering of any locks or cylinders.
- 02 Furnish two (2) change keys per cylinder; 4 master keys per master group

MANUFACTURERS

- 01 Scheduled Manufacturers: The following manufacturers will be used to establish type, grade quality and design and are the basis of the Hardware Sets.
- a. Hinges- Ives
 - b. Locks and Cylinders-Schlage
 - c. Door Closers - LCN
 - d. Push & Pulls, etc.- Ives
 - e. Weatherstripping, Sound Seals, Thresholds, Sweeps-National Guard
 - f. Holders, Wall and Floor Stops, Lock protectors - Glynn-Johnson
 - g. Exit Devices-Von Duprin
 - h. Pivots – Ives

- i. Continuous Gear Hinges - Ives
 - j. Electromagnetic Holders - Rixon
 - k. Bi-fold and Sliding Door Hardware – Lawrence
 - l. Floor Closers – Rixon
 - m. Surface Mounted Automatic Door Operator – K.M.
 - n. Automatic Door Operator Switches – Besam
 - o. Flush Bolts – Any Member of BHMA
- 02 Acceptable Alternate Manufacturers: In addition to the manufacturers named under Materials, the following and only the following may be used providing their products are of equal type, grade, quality, design and material:
- a. Hinges-Boomer, Hager, Lawrence, Stanley or McKinney
 - b. Locks & Cylinders - Sargent, Yale, Best or Corbin/Russwin.
 - c. Closers - Sargent 350 Series, Norton 7700 Series.
 - d. Wall and Floor Stops, Push and Pulls, etc. – Rockwood, Baldwin
 - e. Weather Stripping, Sound Seals, Thresholds, Sweeps-Reese, Pemko or Hager Accent
 - f. Holders - Rixon or ABH
 - g. Exit Devices – Sargent, Monarch and Yale
 - h. Pivots - Rixon, Dor-o-matic or Glynn Johnson
 - i. Continuous Gear Hinges – Select Hinges, Roton-Hager.
 - j. Electromagnetic Holders – Norton, Dorma
 - k. Floor Closer – Ives
 - l. Surface Mounted Automatic Door Operator – Besam, LCN, Door-o-matic
 - m. Automatic Door Operator Switches – Besam

MATERIALS

- 01 The materials listed hereunder are the basis of the Hardware Sets. Furnish per description unless otherwise noted.
- 02 Hinges: Furnish size 4 1/2" X 4 1/2", class BB1279 at doors with closers, BB1191 at exterior openings, and class 1279 at all others unless specified otherwise.
- 03 Locksets:
- a. Provide mortise locksets for all exterior doors.
 - 1. Mortise Locks: Schlage L Series. Certified ANSI Series 1000, Grade 1.
 - 1. Mortise Locks: Corbin/Russwin ML2200 Series. Certified ANSI Series 1000, Grade 1.
 - b. Provide cylindrical locksets or latchsets for all interior doors
 - 1. Cylindrical Locksets: Schlage AL Series. Certified ANSI Series 4000, Grade 1.
 - 1. Cylindrical Locksets: Corbin/Russwin CL3600 Series for. Certified ANSI Series 4000, Grade 1.
- 04 Lockset Trim:
- a. Lever: Saturn
 - a. Lever: Newport.
- 05 Push and Pull Hardware:
- a. Toilet Rooms:
 - 1. Push Plates: Ives 8200 - 3.5" X 15".
 - 2. Pull Plates: Ives 8302-6 3.5" X 15".
 - b. Exterior Doors:
 - 1. Push/Pull: Ives 9190-33

2. Mounting: Type NS

- 06 Closers: LCN
a. Surface: 4010 and 4110 Series, UNI where scheduled.
b. Concealed: 2030 Series.
- 07 Kick Plates:
a. Ives, 18 gauge, 10" high x door width less 1 1/2" at single doors and less 1" at pairs.
- 08 Overhead Holders and Stops:
a. Glynn-Johnson: GJ 80 Series, Exterior; 450 Series, Interior.
- 09 Wall and Floor Stops:
a. Ives: Wall Stops (Bumpers) = WS407CCV, Floor Stops = FS436, Holder WS40.
- 10 Exit Devices: Von Duprin 99 Series OR 88 Series, Trim: Lever Type – 98L
a. Removable Mullions: Von Duprin 4954.
- 11 Weatherstripping: National Guard 5050B.
- 12 Sweeps: National Guard 600DKB.
- 13 Flush Bolts: Manual or automatic type by any member of BHMA whose product is UL listed. Include dust proof strikes with flat rectangular mounting plates.
- 14 Armor Plates: 48" x 0.050" x door width less 3".
- 15 Continuous Gear Hinges: Ives 112HD, Roton-Hager 780-112HD (for Aluminum or FRP frames)(780-224Hd for Wood and HM frames), Stanley 500 Series, Markar FM 2000 Series, or Select Products, Ltd. SL Series. Length: 1" less than door opening height. Fastener 12-24 x 1/2" #3 Phillips keen form stainless steel self-tapping at aluminum and hollow metal doors, 12-1/2" #3 Philips, flathead full thread at wood doors. Furnish fire rated hinges "FR" at labeled openings.
- 16 Thresholds: National Guard Model 325 – 1/2" high x 5" wide at ceramic tile; Model 425 - 1/2" high x 5" wide at all other locations.
- 17 Pivots: Rixon M190.
- 18 Electromagnetic Wall Holders: Rixon Model 990 24v AC x 628. Wire to Fire Alarm System or Smoke Sensor. Mount near top of door.
- 19 Bi-fold Door Hardware: Hager 9870 Series.
- 20 Sliding Door Hardware: Lawrence F505 with 551 carriers.
- 21 Lock Protector: Glynn Johnson LP10 13 ga. Stainless Steel (US32D).
- 22 Roller Catch: Ives RL32.
- 23 Dead Bolt: Corbin Russwin DL 2013
- 24 Floor Closer: Rixon 27 Series
- 25 Surface Mounted Automatic Door Operator: Series LCN 4640 Series as listed in sets.

- 26 Automatic Door Operator Switches: Shall be LCN 8310 Series as listed in sets. shall be 4"x4" Stainless Steel, flush mounted button with blue ADA logo Copy indicating "Handicap Use Only". Use existing switch locations (replacement).
- 27 Electric strikes: not used.
- 29 Electric Power Transfer: not used.
- 30 Proximity Card Reader: Replace existing readers at Automatic Doors.

SUBMITTALS

- 01 Hardware Schedules: Submit complete Hardware Schedules in quantities to satisfy needs of the particular project. Schedules shall be distributed through the General Contractor. No hardware shall be issued to the jobsite until the Architect has reviewed and approved the schedule.
- a. Hardware Schedules shall include all items necessary to meet the requirements of the Architect's Hardware sets and bear all necessary identification of the door functions, items per door and be coordinated to the project Door Schedule as to location and number.
 - b. Follow guidelines established in Door & Hardware Institute Handbook (DHI) Sequence and Format for the Hardware Schedule unless noted otherwise.
 - c. Submit product data and manufacturers cut sheets with hardware schedule
- 02 Electrified Hardware Drawings: Submit elevation drawings showing relationship of all electrical hardware components to door and frame. Indicate number and gage of wires required.
- a. Include wiring drawing showing point-to-point wire hook up for all components.
 - b. Include system operations descriptions for each type of opening; describe each possible condition.

FASTENERS

- 01 Furnish fasteners of the proper type, size, quantity and finish as follows:
- a. Machine screws and expansion shields for concrete or masonry.
 - b. Wall grip inserts for hollow wall construction.
 - c. Wood or machine screws for closers.

FINISHES

- 01 Finishes shall be as follows:
- a. Hinges-US26D Satin Chrome (BHMA 626).
 - b. Locksets, Latchsets, etc. - US26D Satin Chrome (BHMA 626).
 - c. Kick Plates, Push, Pulls, Exit Devices - US32D Satin Stainless Steel (BHMA 630).
 - d. Closer - Matching Spray Painted Enamel (Interior), Color anodized aluminum (exterior).

- e. Pivots - US32D Satin Stainless Steel (BHMA 630).

INSTALLATION AND LOCATIONS

- 01 Install hardware according to manufacturers printed instructions and to template dimensions. Refer to Cylinders and Keying regarding replacement of construction cores with final cores.
- a. Attach all items of finish hardware to doors, frames, walls, etc. with fasteners furnished and required by the manufacture of the item.
 - b. Reinforced hollow metal doors and frames and reinforced aluminum door and frames will be drilled and tapped for machine screws.
 - c. Solid wood doors and frames: full thread wood screws. Drill pilot holes before inserting screws.
 - d. Continuous gear hinges attached to hollow metal doors and frames and aluminum doors and frames: 12-24 x 1/2" #3 Phillips Keenform self-tapping. Use #13 or 3/16 drill for pilot.
 - e. Continuous Gear Hinges require continuous mortar guards of foam or cardboard 1/2" thick x frame height, applied with construction adhesive.
 - f. Install weather-strip gasket prior to parallel arm closer bracket, rim exit device or any stop mounted hardware. Gasket shall provide a continuous seal around perimeter of door opening. Allow for gasket when installing finish hardware. Door closers will require special templates. Exit devices will require adjustment in backset.
- 02 Furnish hardware made to template. Supply required templates and hardware locations to the door and frame manufacturers.
- 03 Dimensions are from finish floor to center line of items.
- 04 Include these locations in the Hardware Schedule

CATEGORY	DIMENSION
Hinges	Door Manufacturers Standard
Flush Bolt Levers	72" and 12"
Knobs	Door Manufacturers Standard
Levers	Door Manufacturers Standard
Push-Pull Units	42" C/L Pull portion
Pulls	44" C/L
Push Plates	45" C/L

QUANTITIES

- 01 Furnish one hinge for each 30 inches of door height or fraction thereof.
- 02 Furnish hinges, continuous hinges, exit devices, push and pull hardware, closers, overhead stops, kick plates, armor plates, door edgings, bumpers, stops, bottom seals, weatherstripping, and thresholds for both leaves of pairs unless specified otherwise.

FINAL ADJUSTMENT

- 01 Provide the services of a representative to inspect material furnished and its installation and adjustment, to make final hardware adjustment, and to instruct the Owner's personnel in adjustment, care and maintenance of the hardware.

- 02 Locksets, closers and exit devices shall be inspected by the factory representative and adjusted after installation and after the HVAC system is in operation, to insure correct installation and proper adjustment in operation. The manufacturer's representative shall prepare a written report stating compliance, and also recording locations and kinds of noncompliance. The original report shall be forwarded to the Architect with copies to the Contractor, hardware distributor, hardware installer and building owner.
- 03 At the completion of the project, the technical and warranty information coalesced and kept on file by the General Contractor/Construction Manager shall be given to the Owner or Owner's Agent. In addition to both the technical and warranty information, all factory order acknowledgement numbers supplied to the General Contractor/Construction Manager during the construction period shall be given to the Owner or Owner's Agent. The warranty information and factory order acknowledgement numbers shall serve to both expedite and properly execute any warranty work that may be required on the various hardware items supplied on the project. Minimum warranty period shall be two (2) years.
- 04 Submit to General Contractor/Construction Manager, two copies each of parts and service manuals and two each of any special installation or adjustment tools. Include for locksets, exit devices, door closers and any electrical products

HARDWARE SETS

- 01 See Drawings.

SECTION 08B**METAL DOORS AND FRAMES****SCOPE OF WORK**

- 01 The work of this section includes all labor, material, equipment and service required to furnish hollow metal work for the project.
- 02 Material Furnished to Other Trades for Installation:
- a. To Division 06 – Doors and frames in stud walls and block partitions.
- 03 Work by Others:
- a. By Section 08C - Door glazing.
- b. By Section 09A – Field painting of doors and frames.

CODES AND STANDARDS

- 01 Hollow metal doors and frames shall comply with the ANSI/SDI-A250 - Heavy Duty core materials of polyurethane or polystyrene. All labeled doors and frames shall meet the requirements of the Underwriter Laboratories. Nomenclature and fabrication standards shall meet the established standards of the American National Standards Institute as they may apply to the work.

MANUFACTURERS

- 01 All steel doors, frames or partitions as scheduled on Door Schedule and specified herein use identifications as established by Curries - Division of Essex Industries. Alternate accepted Manufacturers meeting stated requirements herein: Amweld, Mesker, Ceco, Steelcraft and Kewanee.

DOOR FRAMES

- 01 Frames shall be 18 gauge, galvanized three piece knock down frames as manufactured by Rediframe at all openings. Frames shall be formed with integral stops and rebates. Provide 4" head frames where detailed. Angle spreaders to be welded to the bottom of jambs to assure safe shipment and perfect alignment in field setting. All frames shall have mitered corners, welded and ground smooth and re-prime painted.
- 02 Frames shall be fabricated to suit wall widths as scheduled and to set on finished floor slab. Angle spreaders shall be removed after completion of adjoining walls.
- 03 A minimum of three anchors shall be provided for each jamb (four for openings over 7'6"). Anchors are to suit the wall conditions. Floor anchor clips shall be welded to each jamb and provided with holes for securing to floor.
- 04 Frames shall be accurately mortised for strike plates and hinges per hardware supplier's templates. Adequate reinforcements shall be provided with steel plates welded to the frame and precisely drilled and tapped to accommodate template hardware. Hinge reinforcement shall be 3/16" plate, minimum. Tape hinge reinforcements to prevent clogging of the tapped holes from mortar. Adequate reinforcements shall be provided for door checks, brackets and other surface applied hardware installed in field.

STICK COMPONENTS

- 01 Where pre-engineered frame components are called for on the drawings they shall match the gauge and profile of adjacent door frames.

- 02 Provide frames for sidelights, partial sidelights, transoms and interior vision windows where shown on drawings.
- 03 Provide open sections, closed sections, base sections, cased open sections, filler sections and corner posts as required to accommodate the indicated design details.

HOLLOW METAL DOORS

- 01 Doors shall be flush type 707S Series, hairline seamless, constructed of 16 gauge cold rolled steel for exterior doors; 18 gauge for interior doors, core materials of polyurethane or polystyrene. Top and bottom of door shall be reinforced horizontally by steel channels full width, spot welded to each face at least 3" o.c. Joints at edges of door shall be continuously welded. Doors to be sound and fire insulated with UL approved material. Door tops to be closed. All exterior doors shall be galvanized.
- 02 Hollow metal doors are to be accurately mortised for locks and hinges per hardware manufacturer's templates. Adequate reinforcements shall be provided with steel plates welded to the interior reinforcing channels, and drilled and tapped. Reinforcements shall be provided for door closers and other surface hardware to be field mounted.

ACCESSORY ITEMS

- 01 Provide metal drip cap on all exterior door frames without overhead protection.
- 02 Provide three rubber bumpers inserted in face of each stop.
- 03 Provide top caps on all exterior doors.
- 04 Provide astragal on active leaf of all exterior and fire rated pairs of doors.

HARDWARE

- 01 All door hardware shall be furnished by Section 08A -Finish Hardware and installed by Division 06. See Door and Hardware Schedule Sh. No. XX of the drawings for hardware sets.
- 02 All doors and frames shall be fabricated to accommodate hardware as scheduled.

UNDERWRITERS LABELS

- 01 As scheduled in Door Schedule provide Underwriters Label on door and frame. Construction shall meet all requirements of UL.

GLASS AND LOUVER OPENINGS

- 01 Provide manufacturers standard glass stops where glazed openings are indicated. Provide UL approved metal glazing stops for fire rated doors with glass lights.
- 02 Provide manufacturers standard inverted "V" blade louvers where scheduled.

PAINTING

- 01 All doors, frames and partitions shall be thoroughly cleaned of grease, oil and other impurities, filled flush as to completely conceal all seams and welds and given two coats of baked -on rust resisting primer.

SHOP DRAWINGS

- 01 This contractor shall submit shop drawings for Architect's review, drawings shall include all pertinent material such as material gauges, sizes, swing, hardware list, etc.

SECTION 08C**GLASS AND GLAZING****SCOPE OF WORK**

- 01 The work under this section includes everything necessary and incidental to the glass, glazing and mirror installation.
- 02 Work by Others:
- a. By Division 01 - Glass Cleaning
- 03 All work under this heading shall be in conformance with the latest applicable edition of the IBC National Building Code and The Rules as published by the Glazing Contractors Association, Detroit, MI.

MAUFACTURERS

- 01 All glass shall be supplied with identifying tags of one of the following manufacturers, except where specifically stated otherwise.
- | | |
|-------------------|--------------------------------|
| a. Vitro/PPG | d. Viracon/Apog. |
| b. NSG/Pilkington | e. Guardian Glass (Spec. Used) |
| c. AGC/Asahi | |

MATERIALS

- 01 Safety Glass: Tempered or heat strengthened, 1/4" thick, meeting current requirements of ASTM C1048.
- 02 Clear Glass (Interior Glazing): 1/4" clear float glass, heat tempered.
- 03 Clear Glass (Insulated Panels): SN 68 Ultra-Clear glass, 1/4" thick, meeting current requirements of ASTM C1036.
- 04 Tinted Glass: Guardian Midnight Gray, 1/4" thick.
- 05 Low-E Coating: Guardian SunGuard SNX 62/27, applied to #3 surface.
- 06 Insulated Glass Assembly: Exterior lite tinted glass, 1/4" thick, with 1/2" air space and 1/4" clear interior lite, meeting current requirements of ASTM C1036. Overall thickness: 1".
- 07 Spandral Glass: Clear tempered float glass, 1/4" thick, to match Low-E glass with Opaci-Coat-300 coating on #2 surface; #3 surface to match reflective glass when used in insulated glass panels.
- 08 Insulated Panels: Mapes Industries, Lincoln, Nebraska, Rabbet Edge Mapes-R+ (8-Ply) Panels.
- | |
|--|
| a. Exterior Skin: 1/4" thick glass at "Spandral Glass Faced" panels; metal on substrate where identified as "Laminated Metal Faced". |
| b. Insulation Core: 2" thick 2.0 lb. density Polystyrene. |
| c. Interior Skin: Aluminum with Kynar Finish. |
| 1. Color: As selected from standard colors. |
- 09 Glazing Compound: Shall be Tremglaze Mastic Glazing Compound as manufactured by Tremco. Acceptable alternate manufacturer: Penco.

- 10 Sealant: Shall be Tremco Mono-Lastomeric.
- 11 Mirrors: Shall be mirror glazing quality, polished plate glass, 1/4" thick, electroplated copper back.

INSULATING GLASS ASSEMBLY

- 01 Insulating glass shall meet requirements of tests in accordance with ASTM E 2190 method.
- 02 Tinted Insulating Glass "B": Shall be 1" thick with two lights 1/4" thick and 1/2" air space. Exterior light shall be Low-E Glass; interior light shall be clear glass. Visible light transmittance: 0.42%; Solar Heat Gain Coefficient 0.31%; Winter "U" Value 0.29; Summer "U" Value 0.27. . Provide safety glass where required by current construction codes.
- 03 Clear Insulating Glass: Shall be 1" thick with two lights 1/4" thick and 1/2" air space. Both lights shall be clear glass. Visible light transmittance shall be 74%; Solar Heat Gain Coefficient 0.40; Winter "U" Value 0.29; Summer "U" Value 0.27. Provide safety glass where required by current construction codes.
- 04 Spandrel Insulating Glass: Shall be 1" thick with two lights 1/4" thick and 1/2" air space. Exterior light shall be reflective glass; interior light shall be spandrel glass. Provide safety glass where required by current construction codes.

MATERIAL LOCATION

- 01 Safety Glass: Shall be furnished in all locations required by construction codes.
- 02 Clear Glass (Interior Glazing): Tempered, where shown on drawings.
- 03 Clear Glass (Insulated Panels): Generally for interior light of insulation glass.
- 04 Spandrel Glass: Insulated panel.
- 05 Insulated Panel: Above replacement patio doors.

INSTALLATION

- 01 Glazing installation shall be performed in accordance with the standards of the Flat Glass, Jobbers Association Glazing Manual, latest edition, unless specifically excepted in the specifications or details.
- 02 Installation of glass shall be in strict accordance with recommendations of the glass manufacturer as required for his warranty.

MIRRORS

- 01 Mirrors in toilet rooms shall be installed with metal "J" clips. Mirrors shall have ground edges. Large areas of glass shall have continuous aluminum "J" channels at bottom edge to support weight of glass and glass shall be adhered to wall with construction adhesive.
- 02 Mirrors shall be installed in the following locations – Replacement mirrors in B-311 and B-310.
- Mounting height to bottom of toilet room mirrors shall be 38" maximum to viewable mirror.

BREAKAGE

- 01 At completion of the work, replace all glass under this contract, which is broken or cracked due to improper setting.

GUARANTEE

- 01 This contractor shall guarantee that all work executed under this heading will be sound and waterproof, free from defects in materials and workmanship for a period of one (1) year from date of final acceptance.

SECTION 08N**SLIDING AUTOMATIC ENTRANCES****GENERAL**

- 01 The work under this heading shall include all labor, materials and other services to complete the fabrication and installation of the sliding automatic doors complete with sidelights, framing, headers, carrier assemblies, roller tracks, door operators, activation and safety devices, and accessories required for a complete installation.

MATERIALS

- 01 **Automatic Entrance:** Shall be Dura-storm- 2.05 Non-impact 2000 bi-part automatic doors as manufactured by **Stanley Access Technologies**. Whenever alternative products are offered, submit supporting technical literature, samples, drawings and performance data for comparison 10 days prior to bid due date.
- 02 **Performance:** Automatic doors shall be equipped with: 2 combined activation/ safety sensors and holding doorway holding beams for added safety. The locking system is to include: fail safe 5-point, electric solenoid lock, surface or recessed panic hardware, lock guard, and armored strike. Control system is to be Rocker switch which has rotary, key rotary, or Eco Pro options. The drive system is to include: a ¼ HP DC motor, gear drive, and toothed belt.
- 03 **Materials:** Extrusions shall be 6063 T5 alloy and temper. Formed aluminum components shall be sheet of alloy and temper suitable for their purpose and finish. Fasteners shall be 300 series stainless steel or 400 series stainless steel cadmium plated and of sufficient size and quantity to perform their intended function. Glazing gaskets shall be extruded, black, closed cell or dense elastomer of durometer appropriate to the function.
- 04 **Finish:** Special Finish Kynar Painted Green, match existing. 5 year Kynar finish warranty.
- 05 **Stainless Steel Cladding:** Exposed aluminum sections shall be clad in 304 stainless steel with a minimum thickness of 0.050" satin polished finish
- 06 **Hardware:** Shall be the entrance Stanley Access Technologies standard hardware as follows:
- a. Combined Activation and Safety Sensors: Single housing device that detects motion and presence in accordance with ANSI/BHMA A156.10. K-band microwave technology. Mounting height up to 11.5 feet above finish floor.
 - b. Programmable Controller: Field programmable microprocessor. Operating speeds and forces as required to meet specified ANSI/BHMA standard.
 - c. Emergency Breakaway Feature: Release hardware allows panels to swing out in direction of egress to full 90 degrees from any position in sliding mode. Maximum force to open panel shall be 50 lbf according to ANSI/BHMA A156.10.
 1. Emergency breakaway feature shall include at least two adjustable detent devices mounted in each breakaway panel; one top mounted and one bottom mounted, to control panel breakaway force.
 2. Wind Resistant Damper: Provide factory installed concealed gas dampers in sliding or non-sliding breakaway panels to protect door panels from wind damage. Dampers shall be designed to slow panel movement after breakout.
 - d. Locking: Manufacturer's approved multi-point locking system as follows:
 1. Hook bolt: Laminated-steel hook, mortise type, operated by exterior cylinder and interior thumb turn; with minimum 1 inch (25 mm) long throw bolt; ANSI/BHMA A156.5, Grade 1.

2. [Three-Point Locking: Provide locking components within sliding panel, operated by exterior cylinder and interior thumb turn, that extend flush bolts into overhead carrier assembly and threshold on engagement of hook bolt lock.]
 3. [Five-Point Locking: Provide locking components within sliding panels, operated by exterior cylinders and interior thumb turns, that extend flush bolts into overhead carrier assemblies and threshold on engagement of hook bolt lock and related cylinder.]
 4. Cylinders: [As specified in Division 8 Section "Door Hardware."] [Provide Schlage lock cylinders.] [Provide lock cylinders by BEST Access Systems, with core and key.] [Provide dummy cylinders.]
 5. Lock/Unlock Indicators: Provide lock position indicators integrated with locking system. Indicators shall be stile mounted on the secure side of the door and provide a visual display of lock position for; "OPEN" in black letters when unlocked, "LOCKED" in red letters when locked.
 6. Armored Strike: Provide reinforced security strike plate on bi-parting entrances.
- e. Panic Release Locking: Manufacturer's approved multi-point locking system with panic release hardware as follows:
1. [Two-Point Locking: Provide locking components within sliding panel, including panic release hardware, that extend flush bolts into overhead carrier assembly and threshold of sliding leaf. Flush bolts shall be manually dogged, or disengaged, for normal operation. Lock cylinders shall be provided to allow for disengagement of flush bolts from the exterior.]
 2. [Four-Point Locking: Provide locking components within sliding panels, including panic release hardware, that extend flush bolts into overhead carrier assemblies and threshold of both sliding leaves. Flush bolts shall be manually dogged, or disengaged, for normal operation. Lock cylinders shall be provided to allow for disengagement of flush bolts from the exterior.]
 3. Cylinders: [As specified in Division 8 Section "Door Hardware."] [Provide Schlage lock cylinders.] [Provide lock cylinders by BEST Access Systems, with core and key.] [Provide dummy cylinders.]
 4. Panic release hardware shall be equal to or better than, Adams Rite G86-11-36.
- f. Control Switch: Provide manufacturer's standard rotary switch mounted on the interior jamb and door position switch to allow for full control of the automatic entrance door. Controls to include, but are not limited to:
1. One-way traffic
 2. Reduced Opening
 3. Open/Closed/Automatic
 4. Power Switch: Sliding automatic entrances shall be equipped with a two position On/Off rocker switch to control power to the door.
 5. Sliding Weather Stripping: Manufacturer's standard replaceable components complying with AAMA 701; made of wool, polypropylene, or nylon woven pile with nylon-fabric or aluminum-strip backing.
 6. Provide double pile weather stripping on lead stiles of sliding panels.
 7. Provide single pile weather stripping between carrier and header, lead stiles of sidelights, and on pivot stiles of sliding panels.
- g. Weather Sweeps: Adjustable, dual brush, nylon brush sweep mounted to underside of door bottom.

MATERIAL LOCATION

01 Automatic Doors: See Drawing A5.1.

INSTALLATION

- 01 Doors shall be installed, glazed and adjusted by experienced personnel in accordance with the manufacturer's instructions and approved shop drawings. All items in this section shall be set in their correct location and shall be set level, square, plumb and at proper elevations and in alignment with other work.
- 02 Clean exposed surfaces using methods recommended by manufacturer prior to acceptance of installation by Owner.
- 03 Provide demonstration of operation procedure and recommended care of revolving door and components to Owner representative at completion of project.

SUBMITTALS

- 01 Provide shop drawings and details for Architects review.

GUARANTEE

- 01 Provide a written guarantee for the complete installation provided under this section against defective material and workmanship which appears within a period of one year from the date of substantial completion.

DIVISION 09**FINISHES**

- 01 All work under this heading shall meet requirements of Division I and Instructions to Bidders and include everything necessary and incidental to completion of interior finishes as outlined.
- 02 Work Included:
- a. Section 09A - Painting and Decorating
 - b. Section 09B - Floor Covering
 - c. Section 09C - Gypsum Drywall
 - d. Section 09D – Acoustical Treatment
 - e. Section 09E – Tile Work

SECTION 09A**PAINTING AND DECORATING****SCOPE OF THE WORK**

- 01 This section includes everything necessary and incidental to the painting and decorating work. All exterior surfaces and interior surfaces in finished areas requiring painting and finishing, for protection or appearance, shall be furnished by this Section.
- 02 The following work requires no finish by this section of the Specifications:
- a. Acoustic tile.
 - b. Laminated plastic millwork and/or door veneers.
 - c. Non-ferrous metals, including aluminum store front material and sash; mechanical equipment..
 - d. Roofing and siding sheet metal work.
 - e. Mechanical equipment including baseboard radiation covers, registers, cabinet heaters.
 - f. Wood paneling; wood doors, acoustic panels; deck and laminated beams.

MATERIALS

- 01 Paints, varnishes, enamels, primers, stains, etc., specified herein shall be first line quality of each manufacturer. No substitution from this approved list shall be permitted without the written approval of the Architect.
- a. Primers, fillers, paints and enamels: Glidden, Benjamin Moore, Behr Pro.
 - b. Exterior Stains and Paints: Pratt and Lambert, Glidden.
 - c. Interior Stains and Varnish: Pratt and Lambert, Glidden, Benjamin Moore.
 - d. Epoxy Paint: Glidden "Glid-Tile Epoxide", Pittsburgh "Pitt-Glaze" or Benjamin Moore Epoxy.
 - e. Galvanized Metal Primer: Zinser "Bulls Eye 1-2-3" Water-base Primer-Sealer.
 - f. Vinyl Fabric: Koroseal Waterscapes 7 photo scene. Labor for hanging and labor and material for sealing drywall shall be included in proposal as separate items. Fabric shall be UL rated and labeled. Rating not to exceed: Flame spread - 25, Fuel contribution - 10, Smoke development -10.
 - g. Block Coating: Sonneborn "Hydrocide Super Color Coat" or Tnemec - "Tneme-Crete".

- h. Block Sealer: Chemprobe " Phylon 1422", Hydroplex 109, Benjamin Moore M88 00 or Professional Water Sealant.
- i. Ferrous Metal Dryfall: PPG Speedhide Super Tech WB Interior 100% Acrylic Dry Fog Latex 6-727XI
- j. Water Repellant: Advanced Coatings, Inc. KL-17.

02 Volatile Organic Content of all finishing materials on the project shall not exceed the following limits:

	<u>VOC limit (gram/litre)</u>	
	Flat	Non-Flat
Interior Paint/Stain	50	150
Exterior Paint/Stain	100	200
Anti-Corrosive	250	

PAINTING & FINISHING LOCATIONS

01 See Drawings.

02 Exterior Painting and Finishing:

- a. Hollow Metal Doors & Frames.
- b. Exposed Steel Beams, Lintels, Door Frames, and Handrails where occurring.
- c. Mechanical Equipment PVC visible outcroppings at walls or roof.
- d. Pipe Bollards.
- e. Wood Soffits, fascia and trim.

03 Interior Painting and Finishing:

- a. Hollow Metal Doors & Frames.
- b. Gypsum Board Walls & Ceilings. See drawings for Vinyl Fabric scene view at B316 elevation A.
- c. Wood Doors and/or Wood Trim.
- d. Steel Stairs and Railings.
- e. Elevator Door & Frames.

COLORS AND SAMPLES

01 All colors shall be as selected by the Architect.

02 This Contractor shall submit complete selection of colors of paint manufacturer proposed. Samples shall be of ample size to enable accurate evaluation of final appearance.

03 Finished work shall match approved samples in all cases.

INSTALLATION

01 No painting shall be done on damp surfaces; and the areas in which this Contractor is to work shall be broom clean, before work is started.

02 Application of first coat of paint or other material by this Contractor indicates his acceptance of the surface as proper to receive his work.

- 03 This Contractor shall provide drop clothes and coverings as necessary to protect the work he does and the work of all the other trades at all times. He shall make good any damage done to other work in the execution of his contract. Spray painting will not be permitted unless every precaution is taken to protect all adjacent unpainted surfaces from over-spray. Mask all adjacent surfaces where necessary to adequately protect other work.
- 04 Remove all electric plates, surface hardware, etc., before painting. Loosen canopies of fixtures in contact with painted surfaces. Replace after completion of work. Mask all switches and receptacles.
- 05 All materials shall be applied by skilled mechanics. Work shall be neat and true in every respect, without runs or sags. All stained work shall be properly cleaned and sanded smooth before commencing finish work. Putty up all nail holes and other depressions of a minor nature. Putty shall match wood where natural finishes occur. Fill all minor cracks and finish smooth before painting. Runs and sags appearing in finish work shall be sanded smooth and entire surface refinished.
- 06 Where existing work is scheduled to be refinished do all necessary preparation work, sand surfaces, and make all effort to provide completed finish to match new work as far as practicable.
- 07 A coat of paint or varnish shall be defined as a minimum of 2 mils, dry thickness.
- 08 Each coat of paint shall be allowed a minimum of 12 hours drying time before being re-coated.
- 09 Method of application of paint shall be as scheduled.
- 10 Provide and install Vinyl Fabric in accordance with the following:
- a. Application of the materials shall indicate this Contractor's acceptance of the surface to receive his work.
 - b. Prime all gypsum drywall walls with an approved drywall sealer that receives vinyl fabric.
 - c. All seams shall be closely and neatly butted, air pockets & bubbles eliminated, and a firm bond provided between fabric and subsurface.
 - c. Maintain minimum 3" clearance from floor line to allow for adhesive where vinyl base is scheduled. Maintain minimum 6" wrap-around at all exterior corners.
 - f. Coatings shall match approved mock-up and shall be free from runs, sags, holidays and excessive tactile texture. Transitions between color blends, and between coatings and other materials shall be sharp, clean and without overlaps.

PAINTING SCHEDULE

- 01 **EXTERIOR WORK**
- a. **Ferrous Metal (Brush)**
 1. 1 coat primer (by Supplier).
 2. 1 coat exterior undercoat, tinted.
 3. 1 coat exterior trim enamel.
 - b. **Wood (stain)-(Brush or Spray)**
 1. 2 coats exterior solid hide stain.

- c. Wood-Painted Finish (Brush or Spray)
 - 1. 1 coat primer.
 - 2. 2 coats alkyd semi-gloss enamel.
 - 2. 1 coat house paint.
- d. Exposed Block (Roll or Spray)
 - 1. 1 coat Latex block filler.
 - 2. 2 coats block coating.
- d. Exposed Block (Roll)
 - 1. 1 heavy coat exterior block filler.
 - 2. 1 coat flat enamel, high performance paint.
- f. Metal Siding (Roll)
 - 1. 1 coat primer (by supplier).
 - 2. 1 coat exterior silicone alkyd enamel, semi-gloss.
- g. Galvanized Metal (Brush or Spray)
 - 1. 1 coat galvanizer primer.
 - 2. 1 coat exterior undercoat, tinted.
 - 3. 1 coat exterior acrylic-latex paint.

02 INTERIOR WORK

- a. Gypsum Board where scheduled for paint (Spray or Roll)
 - 1. 1 coat (Latex) primer sealer, tinted
 - 2. 2 coats eggshell enamel.
 - 3. 1-1/2 to 2 mils per coat.
- b. Ferrous Metal (Brush)
 - 1. Sand rust spots and touch-up, primer.
 - 2. 1 coat Alkyd primer, tinted
 - 3. 2 coat Alkyd eggshell enamel.
- d. Wood Natural Finish (Brush) Wood Trim and Doors
 - 1. Sand, wipe.
 - 2. 1 coat P & L Tonetic Stain, sand lightly.
 - 3. 1 coat P & L Polyurethane varnish, satin , sand lightly.
 - 4. 1 coat P & L Polyurethane varnish, satin, Steel Wool.
- f. Block and Gypsum Board where scheduled for multi-color (Spray)
 - 1. Basecoat per specification (this section).
 - 2. Sand.
 - 3. 2 coats multi-color finish per specification (this section).
- g. Block (Roll)
 - 1. 1 coat block filler-apply with stiff brush, fill all pores and voids, roll out all brush marks.
 - 2. 2 coats epoxy paint semi-gloss-minimum thickness: 5 mils dry.
- h. Concrete Floors (Brush or Roll)
 - 1. 1 coat Epoxy - cut 50%.
 - 2. 1 coat Epoxy.
- i. Ferrous Metal Dryfall (Spray)

1. Sand rust spots and touch-up, primer.
2. 1 coat Semi-Gloss Primer and Finish.

GUARANTEE

01 This Contractor shall guarantee his work for a period of one (1) year from date of final acceptance against defects due to faulty workmanship or material.

SECTION 09B

FLOOR COVERING

SCOPE OF WORK

- 01 This Section shall provide all labor and material, services and equipment necessary and incidental for installation of floor coverings and related items.
- 02 Floor materials furnished under this Section shall meet all applicable requirements of ASTM, NFPA, ISO, NSF/ANSI as they may relate to the project.

MATERIALS

01 CARPET SCHEDULE

Name	Manufacturer/ Style	Size	Collection	Style	Pattern	Color	Installation
CARPET "CA-1"	Shaw	24" x 24"	Noble Materials	#5T134	Honed Tile	#33111 Alabaste r	Ashlar

- a. All Carpet Tile shall be as scheduled.
- b. Alternate Carpet Tile: Mannington-Visible Light-Frequency-18x36.

02 BASE SCHEDULE

Base at	Manufacturer	Height	Type	Color
CARPET "CA-1"	Mannington/Carthage 4	4"	Top binding	Match Carpet "A"
VINYL COMPO. TILE "VCT-1"	Armstrong, VPI, Roppe Johnsonite	6"	Top Set Cove	As selected
MILLWORK	Armstrong, VPI, Roppe Johnsonite	4"		

- 03 Adhesives, leveling and patching compounds shall be as recommended by Manufacturer for particular floor coverings employed.

Volatile Organic Content of all adhesive materials on the project shall not exceed 50 grams per liter.

MATERIAL LOCATION

- 01 See drawings for Finishes.

DELIVERY, STORAGE AND HANDLING

- 01 Shall be in accordance with the product manufacturer's stated conditions for product being used.

INSTALLATION

- 01 Room temperature during installation shall be 70 degrees F. Follow manufacturers recommendations on installation throughout. Proceed with installation only when proper moisture content of concrete floor slab is achieved for type of material being applied.
- 02 Generally the tile and carpet installation will be without pattern.

03 Carpet:

- a. Carpet installation shall generally be installed by direct glue method with self-releasing adhesive.
- b. Manufacturer's detailed installation instructions shall be strictly followed. Installation shall be under direction of manufacturer's trained personnel and meet their approval.
- c. At all doorways and carpet terminations at hard surfaced floor materials provide Burke-Mercer carpet reducer strip, color as selected by Architect.
- d. Provide all necessary protection for completed installation and turn carpeting over to Owner in perfect condition, free from stain and damage from other trades.

04 Vinyl Base:

- a. Provide and install vinyl base where indicated on the Drawings. Base is generally required at carpet (except at brick walls) and resilient tile and at Millwork. Neatly fit all base to walls; interior and exterior corners and insert returns at hollow metal door frames into joint between frame and wall.

05 Carpet Base:

- a. Provide and install carpet base where scheduled on the Drawings. Remove protective covering from self-adhesive backing and firmly press base to walls. Install carpet base into internal corners with linoleum knife. Stretch base around all external corners.

CLEANING, WAXING, POLISHING

01 At completion of all other work, thoroughly clean all resilient tiles and sheet goods installed under this contract.

- a. All resilient tile or sheet goods shall receive a complete application of waxing and polishing in strict accordance with the recommendations of the manufacturer of the flooring material.
- b. This contractor shall present the Owner, or the Owners maintenance personnel, with instructions on the correct maintenance procedures to be followed in future use of the flooring.

02 Clean all adhesive from carpet with "Dissolve" solution and leave in perfect condition, cleaned and vacuumed for Owner's acceptance.

03 Provide heavy paper protection against any subsequent traffic prior to Owner accepting building.

REPLACEMENT MATERIAL

01 At completion of project, deliver to Owner:

- a. Usable overage.
- b. Two boxes of each major field color of carpet tile

FLOOR MATTING

01 Provide and install at entry vestibules, commercial floor matting as manufactured by Consolidated Plastics Company, Inc., Twinsburg, Ohio 44087 1-800-362-1000.

- 02 Mats shall be 100% polypropylene carpet face bonded to slip and stain resistant rubber base, 3/8" thick. Mats shall be Consolidated Aquasorb indoor/outdoor type, 36" wide x 60" long, color as selected from standard colors.

GUARANTEE

- 01 This contractor shall guarantee all materials and workmanship under this heading to be free from defect for a one (1) year period from date of acceptance.

SECTION 09C**GYPSUM DRYWALL****SCOPE OF WORK**

- 01 The work under this Section shall provide all materials, labor, protections, and appliances necessary to furnish, deliver, and install gypsum board panels. Gypsum panels are identified as "Gyp. Bd." on drawings.
- 02 Work Included:
- a. Interior partitions, exterior wall interior finish, ceilings, and ceiling drops.
- 03 Work by Others:
- a. By Section 05H – Exterior metal studs and framing, furring, and sill sealers.

MATERIALS

- 01 All gypsum board materials described herein are as manufactured by United States Gypsum Company and shall be installed in accordance with its printed instructions.
- a. Accepted Alternate Manufacturers: National Gypsum Co., Continental Building Products, Framing: U.S. Steel Super C Steel Framing, Wheeling Steel Framing, CECO, Dale/Incor.
- 02 Gypsum Panels:
- a. Face Boards: Shall be 5/8" tapered edge Sheetrock SW, 48" wide in lengths as long as practical to minimize the number of joints; 5/8" Sheetrock Firecode (ASTM C36/C36M, Type "X") where required for fire rated construction. W/R Regular Gypsum Panels where required for water-resistant construction, Securock Glass-Mat Gypsum Sheathing for exterior usage.
- b. Green Board: 5/8" USG Mold Tough.
- c. All exterior panels shall be foil backed to provide a vapor barrier if insulation does not have a vapor barrier attached.
- 03 Metal Framing:
- a. Interior:
1. Studs - ST, sizes as indicated on drawings, gauges: 3-5/8" up to 9'-0" high - 25 gauge; 3-5/8" 9'-0" to 16'-0" - 20 gauge; 3-5/8" over 16'-0" – 18 gauge. 6" any height - 20 ga., 8" any height - 18 ga., Furring shall be 25 gauge.
 2. Runners - CR25 - sizes as indicated on drawings.
 3. Steel Framing: Unimast SJ members for load-bearing wall applications.
 4. Furring Channels – Z-furring channels, 1½" deep; hat channels 7/8".
 5. Flexible framing – 20 ga. hot dipped galvanized steel ASTM A653 Structural Grade 33, : as manufactured by Flex-Ability-Concepts. (www.flexc.com)
 - a. Flexible Tracks: Flex-C Trac, width as required, and Flex-C Angle, with slideable strap
 - b. Flexible Arch: Flex-C Arch, width as required.
 6. Shaft wall studs – CH type, 20 ga.
- 04 Joint System: U.S. Gypsum Sheetrock Paper joint tape system with USG Sheetrock Lightweight All-Purpose Joint Compound with dust control. St. Gobain Fibafuse Max paperless mesh joint system at areas of moisture.

- 05 Fasteners: Per Selector Guide for USG Screws - for conditions of use.
- 06 Accessories:
- a. Corner Bead - USG No. 104 Dur-A-Bead.
 - b. Casing Bead - USG No. 200A or 200B Type metal trim; Paper faced B9. J-Stop not acceptable
 - c. Control Joint - USG No. 093.
- 07 Adhesive: USG Durabond 200 or 300 adhesive. Volatile Organic Content of adhesives for gypsum boards shall not exceed 50 grams per liter. Preferred alternate meeting panel manufacturers approval: OSI GreenSeries construction adhesive meeting ASTM E72 and C557. V.O.C. content < 2 g/L (1% by weight).
- 08 Caulking: USG Sheetrock Acoustical Sealant.
- 09 Ceiling Suspension: USG Drywall Suspension System.
- a. Gypsum Panels: ASTM C36/C36M, 5/8" thickness for flat ceilings, laminated lesser thicknesses to accommodate curved and dome conditions.
- 10 Furring Channels: 25 gauge corrosion resistant, roll-formed, hat shaped sections, 7/8" x 2 9/16".
- 11 Furring Channels w/insulation: 1 1/2" Z-Furring Channels, 24 gauge corrosion resistant steel with mechanically attached FS-15 insulating blankets or polystyrene rigid insulation.

MATERIAL LOCATIONS

- 01 Gypsum Panel System: Generally for interior partition walls. Green Board at kitchenette and any moisture areas.
- 02 Gypsum Panels on Furring: Soffits, where needed for straightness.
- 03 Metal Framing: Generally, for interior partitions and ceiling drops.
- 04 Ceiling Suspension: Generally, for suspended ceilings, ceiling drops, curved or domed ceilings.
- 05 Caulking: Provide at both sides of interior partitioning steel runner prior to gypsum board installation.

INSTALLATION

- 01 General:
- a. This Contractor shall inspect all walls, grounds, surfaces, hangers, electrical boxes, heating outlets, etc., by other trades and assure himself that all are true and secure. Defective work shall be reported and corrected before proceeding with the work. No work of other trades shall be covered until installations are complete, tests and inspections made, and approval given.
 - b. The temperature of the area where the gypsum panels are being applied shall be maintained between 45 degrees and 70 degrees and adequate ventilation shall be provided to eliminate excessive moisture.
 - c. Material shall be applied by skilled mechanics, properly trained and experienced in the application of the board and joint treatment.

- d. System shall generally consist of 5/8" gypsum panels suspended or applied over steel framing. Drywall shall be applied with manufacturer's approved screws, and joints treated with tape and joint compound.

02 Walls:

- a. Before applying gypsum board provide sealant at steel runner; install metal casing bead at termination of work, specifically where drywall abuts masonry, door frames etc. Use maximum lengths of material available to avoid joints.
- b. Apply gypsum panels perpendicular to studs or furring. Position all ends over studs. Use maximum practical length to minimize joints. Fit ends and edges closely, but not forced together. Install panels with USG screw application method. Secure panel at top and bottom.
- c. Corner beads shall be applied to all external corners of the boards. Beads shall be set plumb and in the plane of the board. Corner beads shall be straight and true, without bends, butt joints or crimps.
- d. Provide control joints at all construction changes in the plane of the panels, and for partition or ceiling runs exceeding 30 feet.
- e. Where structural deflection is a consideration provide slip or slotted track detail suitable to accommodate the anticipated deflection. Detail shall be as standard with the manufacturer of the studs

03 Ceilings:

- a. Install in accordance with ASTM C636, CISCA installation standards and other applicable codes. Install in accordance with manufacturer's current printed recommendations.
- b. Flat ceilings: Main tees shall be spaced a maximum of 48" on center and supported by 12ga. hanger wires spaced a maximum of 48" on center and as specified by UL Fire Resistance Directory attaching hanger wires directly to structure above. Cross tees shall be spaced per manufacturer's recommendations. At any ceiling openings interrupting the grillage, provide additional cross reinforcing. Apply gypsum panels of maximum practical length with long dimension perpendicular to furring channels. Position end joints over channel web and stagger in adjacent rows. Fit ends and edges of panels closely, but not forced together. Fasten panels to furring with 1" Type S screws spaced 12" o.c. in field of panels and along abutting ends and edges.
- c. Install control joints where indicated on Reflected Ceiling Plan.

04 Ceiling Drops:

- a. Install miscellaneous ceiling drops at upper cabinets, movable partitions, lighting drops, etc. where shown throughout. Construction shall be consistent with ceiling construction standards.
- b. Provide structural headers and vertical supports where indicated at large openings.
- c. Install control joints where indicated on Reflected Ceiling Plan.
- d. Provide stop beads and corner beads required to complete the drop details.

05 Joint System:

- a. Using a suitable tool or machine, a thin uniform layer of joint compound approximately 3" wide shall be applied over the joint to be reinforced. The tape shall be centered over the joint and seated into the compound, leaving sufficient compound under the tape to provide proper bond. Excess compound shall be cleaned from the surface of the board.
- b. The tape shall be covered with topping spread evenly over and slightly beyond the tapered edge area of the board and feathered at the edges. After the previous coat is dry, it shall be covered with a second coat of topping with a smooth uniform slight crown over the joint and the edge feathered slightly beyond the preceding coat. All dimples at nail heads shall receive three coats of joint compound.
- e. Flanges of all corner beads and casing beads shall receive at least two coats of joint compound. When completed, the compound shall extend approximately 8" to 10" on either side of the exposed nosing. Columns and ceiling drops, less than 20" wide shall have full bed of compound between beads.
- f. All coats in finished ceiling areas shall be sanded as necessary after each application of joint compound has dried. The final coat and subsequent sanding shall leave gypsum wallboard and treated areas uniformly smooth and ready to receive paint finish.
- g. All panels in concealed ceiling areas shall be "fire taped" only to seal off attic space.

CLEANING

- 01 Upon completion of work, remove all debris resulting from the work and leave areas in neat condition for subsequent trades.

PROTECTION

- 01 Protect all wood, glass, aluminum and other finished work during the progress of work and make good any damages done to such work.

GUARANTEE

- 01 This Contractor shall guarantee all materials and workmanship under this heading for a one (1) year period from the date of acceptance. The guarantee shall include repainting of areas damaged due to defects under this heading

SECTION 09D

ACOUSTICAL TREATMENT

SCOPE OF WORK

- 01 The work under this heading shall provide all materials, labor, services, equipment, necessary for and incidental to the installation and furnishing of acoustical tile and related suspension systems as called for on the drawings and specified herein.
- 02 Construction conditions shall comply with Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings - ASTM C635/C635M and Recommended Practice for Installation of Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings - ASTM C636/C636M.
- 03 Systems shall be rated for Noise Reduction Coefficient in accordance with ASTM C423 and Sound Transmission Coefficient in accordance with AMA 1-II as tested by an independent agency.

MATERIALS

- 01 Acoustical tile specified herein is as manufactured by USG Interiors, Inc. All tile shall be Class A.
- 02 Tile Schedule:

Tile Type	Product Name	Panel Size	Thick.	Item No.	Edge	NRC	CAC Minimum	Light Refl.	Color
Acoustic Tile	Radar Illusion Two	24"x48"	5/8"	2842	SLT	.55	35	.84	White

- 03 Approved Alternate Manufactures: Armstrong, Certainteed & Owens-Corning.
- 04 Suspension System: Shall be Donn Products Exposed Suspension System. All Suspension system parts shall be of sufficient strength and rigidity to carry acoustical units in a true and level plane without exceeding a deflection of 1/360th of its span.
- 05 Suspension System Schedule:

At Tile Type	Grid Type	Grid Edge	Wall Molding	Color
Acoustic Tile "A"	DX	FL	M7	White

- 06 Acceptable Alternate Manufacturer: Flange Klamp, Eastern.

MATERIAL LOCATIONS

- 01 See Drawings.

INSTALLATION

- 01 All acoustical tile and panels shall be installed in strict accordance with the manufacturers recommendations by experienced, skilled mechanics. Cutting and edging of all boarder tiles shall be done in a precise and accurate manner to match field tiles. Framing and installation of suspension systems shall be in accordance with ASTM C635 and C636 respectively as applied to Metal Ceiling Suspension Systems for Acoustic Tile and Lay-in Panels.

- 02 All lighting fixtures are installed by Division 16. Ceiling diffusers are installed by Division 15.
- 03 At exposed grid system provide Main Tees supported by No. 12 ga. wire at 4' - 0" o.c. for tees not bearing light fixtures. Provide additional hangers at each corner of light fixtures for support. Provide wall angles at all walls to match exposed grid and as detailed. Water or laser level for uniform ceiling height. All members shall be surely interlocked for good stability and shall be plumb and in true alignment throughout the combined lengths. Use maximum available lengths of material wherever possible. Miter all corners in wall angles. Acoustical panels shall lay flat and true in grid. All panels shall securely fit into the suspension system.
- 04 Entire installation shall be coordinated as necessary with Mechanical and Electrical Trades. This contractor's layout in accordance with Electrical Plan will establish dimensions for all affected trades. See Reflected Ceiling Plans Drawing Sh. A1 & A2 for location and details of all ceiling work.
- 05 Immediately remove any foreign substances from exposed grid members. Touch up any minor scratches or blemishes with paint type and application to match. Replace any grid members showing crimps or major blemishes and leave installation in acceptable condition.

REPLACEMENT MATERIAL

- 01 At completion of installation provide to Owner one (1) unopened box of each type of acoustic tile used on the project.

GUARANTEE

- 01 This Contractor shall guarantee that all work executed under this heading will be free from defects of material and workmanship for a period on one (1) year after date of acceptance.

SECTION 10B**TOILET ROOM ACCESSORIES**

01 This Section shall provide and install toilet room accessories in accordance with the following schedule. Bradley Washroom Accessory Catalog Numbers have been used in the schedule. Alternate Acceptable Manufacturers: Bobrick Corp., American Specialties.

02 Schedule:

LOCATION	DESCRIPTION	MODEL NO.	REMARKS	PLAN ABBR.
Rm. B-310 & B-311	Grab Bars @ HC WC	812	1 @ 18", 1 @ 36", and 1 @ 42"	A
Rm. B-310 & B-311	Paper Holder	5234	One @ Each WC	B
Rm. B-310 & B-311	Towel Dispenser/ Waste Receptacle	234	Recessed in Wall	C
Rm. B-310 & B-311	Disposal Units	4721-15	In Part'n Btwn.WC's	D
Rm. B-310 & B-311	Disposal Units	4722-15	Surface Mounted	D
Rm. B-310 & B-311	Soap Dispenser	6531	Surface Mounted	E
Rm. B-310 & B-311	Waste Chute	P10-696	Recessed in Counter Top	F
Rm. B-310 & B-311	Changing Table	962	Recessed in Wall	G
Rm. B-310 & B-311	Coat Hooks	9943	Surface Mounted	K

03 Installation

- a. Assemble fixtures and associated fittings and trim in accordance with manufacturer's instructions.
- b. Install supports attached to building structure for equipment requiring supports.
- c. Grab Bars: Install grab bars to withstand downward force of not less than 250 lbf (1112 N) per ASTM F 446.
- d. Install equipment level, plumb, and firmly in place in accordance with manufacturer's rough-in drawings.

04 Cleaning and Protection.

- a. Repair or replace defective work, including damaged equipment and components.
- b. Clean unit surfaces, and leave in ready-to-use condition.
- c. Turn over keys, tools, maintenance instructions, and maintenance stock to Owner.

05 Testing and Adjusting.

- a. Test each piece of equipment provided with moving parts to assure proper operation, freedom of movement, and alignment.

SECTION 15B**PLUMBING****GENERAL**

- 01 All applicable provisions of Mechanical Trade Requirements, NSPC, and Michigan Plumbing Code 2018 shall apply to the work under this section of the specifications.

SCOPE

- 01 This section shall include all labor, materials, tools and equipment required for the furnishing and installing of all plumbing work herein described and/or shown on the Drawings.
- 02 Sanitary drainage system shall consist of waste, soil, suction, and vent piping as shown on the plans and as required for the installation of all plumbing fixtures, equipment and specialties, and underground waste drains connected to existing sanitary sewer, as indicated on drawings.
- 02 Sanitary drainage system shall consist of waste, soil, suction and vent piping as shown on the plans and as required for the installation of plumbing fixtures, equipment and specialties and underground waste drains carried to a point five feet outside of building for connection to septic tank (public sanitary sewer) by others.
- 02 Sanitary drainage system shall consist of waste, soil, suction and vent piping as shown on the plans as required for the installation of plumbing fixtures, equipment and specialties and underground waste drains carried to the grinder pump manhole and connected therewith.
- 03 Domestic water system shall include water services, meter, all cold water and hot water piping complete with valves, fittings and connections to plumbing fixtures, equipment and specialties, commencing at Municipal water main in R.O.W. (on-site), all as required for complete systems.
- 03 Domestic water system shall include all cold water and hot water piping complete with valves, fittings, and connections to plumbing fixtures, equipment and specialties, commencing at well tanks, all as required for complete systems.
- 03 Domestic water system shall include all cold water and hot water piping complete with valves, fittings and connections to plumbing fixtures, equipment, specialties, all connected to existing building water piping.
- 04 Storm drainage system shall consist of roof sumps and conductors, and connections to site drainage system.
- 05 Fire protection system shall consist of sprinklers, valves, and pipes off the domestic water supply.
- 05 Fire protection system shall commence at public water main and include connection thereto, main, riser, valve, detector check valve, meter, flow switch, piping sprinkler heads, inspectors test valve, etc. as necessary for a complete system.
- 06 Gas system shall commence at meter and shall include distribution piping to equipment for space and water heating.
- 07 Compressed air system shall consist of air compressor, piping, filter/lubricator, hose reels and connections thereto.
- 07 Compressed air system shall consist of mains, drops, valved tees on drops and connection to Owner's air compressor.

MATERIAL SCHEDULE

- 01 General: All material installed shall be new, full weight, of the best quality, and with the same brand of manufacturer used for each class of material. Verify material list with local authorities and adjust standards to comply with their requirements.
- 02 Pipe and Fittings:
- a. Sanitary, storm and vent piping above ground shall be copper DWV, ASTM b-306 drainage piping or PVC drainage piping, schedule 40, A.S.T.M. D2665, where permitted by code. PVC piping may not be used in plenum spaces.
 - b. Sanitary and storm piping below ground shall be service weight cast iron soil pipe with compression type fittings or schedule 40 PVC A.S.T.M. 02665 where local code permits.
 - c. Domestic water above ground - Type M hard temper, copper tubing, ASTM B88 with wrought copper fittings USASI B16.18, and 50% antimony soldered joints.
 - d. Domestic water below ground - Type K hard temper copper tubing, ASTM B88 with wrought copper flair fittings. Use no solder below ground.
 - e. Natural gas - Schedule 40 black steel pipe ASTM A120 with 150 lb. malleable iron screwed fittings, USASI B36.1. Underground piping shall be polyethylene pipe approved for low pressure gas service. Install flexible piping at connections to furnaces.
 - e. Air and Gas Piping - Shall be schedule 40 black steel, ASTM A53 and ANSI B36.1, and malleable iron threaded fittings, 150 lb., pattern ANSI B16.3, however, welding fittings may be used down to 1-1/4" at the contractor's option.
- 03 Valves: Valves shall be Crane, Fairbanks, Lunckerheimer, Kennedy, Jenkins or Nibco and equal to the following model numbers:
- a. Domestic water valves shall be bronze body, 200 psi, W.W.P., fully serviceable without removal from the line.

Gate Valve	Jenkins	1243 solder ends
Globe Valve	Jenkins	1200 solder ends
Check Valve	Jenkins	1222 solder ends
 - b. Gas and Air cocks, 1/2 to 2 inch, shall be bronze body, 125 psi gas pressure screwed ends, Crane 252.
 - c. Valves shall be installed in the following locations. Provide access panels where necessary.
 1. Branch tees off mains.
 2. Bathroom, kitchen or other use group.
 3. Each individual fixture.

MATERIALS INSTALLATION

- 01 Piping shall be arranged to maintain head room, shall be run parallel with adjacent walls, shall be concealed in all finished areas, shall be grouped together in long runs, and shall be installed to provide for expansion and contraction. Openings in pipes shall be covered or capped until connections are made. Reducing run tees shall be used where pipe sizes reduce on horizontal

- runs: Bushings are not permitted. All fittings, valves, threads and joints shall be free from defects and shall be tightly fitted.
- 02 Water distribution piping shall be graded with a uniform slope of 1/8" in 10 feet. Arrange water piping to drain at one point and provide hose end drain valves a low points. Where a fixture, such as a sink, is connected to a riser at its lowest level, the fixture may serve as a low point drain. Where water lines are laid under the floor they shall be encased in four inches of clean sand and allowance made for expansion by the use of offsets or expansion loops. Hot water piping below ground shall be insulated and separated a minimum of 18" from cold water piping.
 - 03 Provide air chambers at each fixture branch. Air chambers shall be twenty-four inches long and of one pipe size larger than the branch fixture supply. All supplies must drip from a valved header above the elevation of the faucet, so that the air chamber is self-draining when the header is valved closed and the faucets are opened.
 - 04 Shut off valves shall be installed to isolate sections of piping and fixtures for repairs without requiring shutdown of main. Union shall be provided for easy removal of valves, except for flanged or soldered valves.
 - 05 All water distribution lines shall be chlorinated. After pressure test and before chlorination, remove all dirt and foreign matter by thoroughly flushing lines. Add the chlorine mixture by a solution feeding device or in powdered form. Chlorine solution concentration shall be 75 parts chlorine to one million parts of water. The mixture shall be allowed to stand in the lines for not less than four hours after which the lines shall be thoroughly flushed with clear water.
 - 06 Chrome plated escutcheons, shall be provided at points where exposed pipes pass through walls, ceilings, and floors of finished rooms. Furnish access doors so that valves in concealed piping can be accessible. Branches to fixtures shall have stops. All joints between copper and steel shall be made with dielectric coupling. Isolate all piping from direct contact with the building or framing with a strip of hair felt.
 - 07 Soil, waste, and drain lines shall pitch down not less than 1/8" per foot in the direction of flow. Provide cleanouts in all drainage lines. Where possible, group vents into minimum number of main vents through roof. Vents through the roof shall be three inches minimum. Floor drains in water proof floors shall be flashed with 4 lb. sheet lead or 16 oz. soft sheet copper extending at least 12 inches from drain clamping device rim into membrane waterproofing.
 - 08 Gas piping to be run underground shall have 24" cover. Riser to be outside wall with fitting iron pipe above grade. Piping in mech. rooms to be overhead with drop to each gas burning appliance.
 - 09 Joints in cast iron soil pipe shall be by the use of positive double seal elastomeric compression type joints such as Tyler Ty-seal. Joints in clay sewer pipe shall be applied as directed by the manufacturer. Screwed piping shall have pipe threads cut with clean sharp dies, burrs removed, ends reamed, and assembled with approved pipe dope applied to male threads only.
 - 10 Install water meter furnished by water department in accordance with local code.
 - 11 Install ASHRAE Standard 90.1, Section 7.2.6 specified heat traps on cold water and hot water piping at water heater to prevent natural convection of heated water if no recirculating system is used.

TESTS AND ADJUSTMENTS

- 01 Provide test pumps, gauges, meters, etc., as required, materials and labor in connection with tests. Before testing, remove or isolate parts not designed to withstand pressure used in testing pipes. All piping shall be tested and corrected before concealment and before insulation is applied.
- 02 Storm and sanitary lines shall be tested with water in the presence of the proper inspector and in strict accordance with the local plumbing regulation.
- 03 Water lines shall be tested at a pressure of 100 psi in the presence of the plumbing inspector for a minimum of four hours; underground water lines shall be maintained without pumping and consideration given to changes in ambient temperature in evaluating test effectiveness.
- 04 Gas and Air shall be tested with air or inert gas. The piping shall stand a pressure of at least 50 psi for a period of not less than 30 minutes without showing any drop in pressure.

PLUMBING FIXTURES

- 01 The Contractor shall furnish and install all fixtures, unless otherwise noted, and shall make all required supply, waste, soil and vent connections, together with all fastenings, supports, crocks, traps, etc., leaving all in complete working order.
- 02 For fixtures mounted on wood, tile, formica, or other structural materials not suitable for mounting or supporting fixtures, this contractor shall provide such concealed supports as may be required to strengthen the walls for support of fixtures. After fixtures have been set, this contractor shall provide crates or other necessary protection for fixtures against damage that might result from painting, floor finishing, and other mechanical or architectural work remaining to be completed. This contractor shall be responsible for all fixtures until final acceptance of the building.
- 03 China cement shall be one part gray Portland cement and two parts sand. All joints shall be raked and pointed with white Portland cement. No plaster of Paris shall be used in the setting of any fixture or fitting.
- 04 Metal finish on all plumbing fixtures fittings shall be polished chromium plate on brass. The above applies to all supply and waste fittings, supply escutcheons, floor and wall plates, traps, etc. Supply stops of the heavy compression type shall be furnished for each fixture on both the hot and cold lines. Any hose end faucet nozzle fixture or any fixture with a supply connection that could drop below the rim of the overflow shall be fitted with approved vacuum breaker.
- 05 Particular care shall be taken that cement or other materials are not allowed to get into floor drains. Prior to final inspection, this contractor shall clean all fixtures and floor drains, etc.
- 06 Before proceeding with above ground roughing, check clearances for fixtures and mounting heights with the architectural drawings. Verify locations and sizes of service to be provided for equipment to be furnished by others. Rout piping around heating ducts.
- 07 Plumbing fixtures and appurtenances shall be equal to the manufacturer's model numbers scheduled herein. Approved Alternate Manufacturers:

China and Enameled Iron Fixtures: Kohler, American-Standard.

Toilet Seats: Church, Olsonite, Beneke.

08 Plumbing fixture Schedule:

- a. Flush Valve Water Closet –American Standard Barrier Free AFWall with Everclean Surface. ADA with Olsonite L210-CC open front seat. Flush valve to be AS Selectronic Flushometer, 1.6 gpf low consumption valve
- b. Integral Countertop Lavatory – Bradley Frequency FL-1L System with Terrion RE Solid Surface, sink deck and integral trap cover and deck support. Bradley Capacitive Sensing Faucet, drain. Greenguard Gold Certification.

PLUMBING SPECIALTIES

01 Specialties shall be Boosey, Josam, Smith, Wade or Zurn equal to the following Smith Model numbers:

- a. Floor Drain - Smith 2010A (3581 funnel top at condensate drains) cast iron drain body with seepage flange, clamping collar, and adjustable nickel bronze six inch diameter standard strainer. Do not use PVC floor drains.
- b. Floor Cleanout - Smith 4040 cast iron body with square nickel bronze top. Do not use PVC for cleanouts.

03 Water Recirculating Pump - B & G "75" Bronze Booster pump, 1/12 hp, 120V motor. Install Honeywell L6006 C1018, 120 volt strap on aquastat for wiring by others.05 Thermostatic Valves:

- a. Handicap Lavatories - provide and install an automatic tempering control on hot water supply at water heater in compliance with Michigan Barrier Free Code.
- b. Valves shall be Lawler Series 66 Thermostatic Water Controller, unit No. 83008, 3/4" connections, Rough Bronze, 120 degree F setting, with check valves on each inlet.

INSULATION

01 Furnish and install insulation for the following:

- a. All domestic cold water lines except underground cold water and fire protection lines.
- b. All hot water supply and return piping.
- c. All roof sump bodies and respective horizontal drain lines.

02 Insulation shall be as manufactured by Owens-Corning, Johns-Manville, Certain-Teed, or Pittsburgh Fiberglas Division. Insulation shall be applied as directed by manufacturer. Insulation shall have a UL hazard classification rating not to exceed flame spread of 25, fuel contributed 50, and smoke developed 50.

03 Insulation shall be one piece preformed Fiberglas. Fittings and valves shall be similarly insulated or with hand molded plastic insulating cement to a thickness equal to the adjoining covering.

- 04 Pipe insulation in all areas shall have a factory applied flame resistant vapor barrier jacket and seams sealed with a vapor barrier adhesive. Jacket shall be vinyl coated and embossed vapor barrier laminate all service jacket. Fittings shall be similarly finished.
- 05 Underground hot water lines shall be insulated with 1/2" closed cell neoprene insulation equal to "Armaflex" pipe insulation.
- 06 Pipe insulation thickness shall comply with ASHRAE Standard 90.1, Table 6.2.4.5.
- Cold water and roof conductors: 1/2" thick
Hot water: 1/2" thick on 1 1/4" and smaller pipe; 1" thick on 1 1/2" and larger pipe.
Hot water return: Same as hot water.